INDIA RUBBER WORLD

CAOUTCHOUC — HEVEA BRASILIENSIS — GUTTA-PERCHA — PALAQUIUM GUTTA

Edited by HENRY C. PEARSON - Offices, No. 35 West 21st Street, NEW YORK.

Vol. XXXVII. No. 4. JANUARY 1, 1908. 35 CENTS. $3.00 Per Year. $3.50 Abroad.

INDIA RUBBER WORLD

Published on the 1st of each Month by

THE INDIA RUBBER PUBLISHING CO.,

No. 35 WEST 21st STREET, NEW YORK.

CABLE ADDRESS: IRWORLD, NEW YORK.

HENRY C. PEARSON, EDITOR. HAWTHORNE HILL, ASSOCIATE.

Vol. 37. JANUARY 1, 1908. No. 4.

SUBSCRIPTIONS: $3.00 per year, $1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, $3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank draft, Postoffice or Express money orders on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal order, payable as above.

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Entered at New York postoffice as mail matter of the second class.

IMPROVEMENT IN BUSINESS.

THE financial and trade situation at any particular time can hardly be reviewed adequately in a single brief article, so complex and interrelated are the currents of business, even when only one country is under consideration. But nowadays no country stands alone in matters of trade, and the business depression referred to in these columns a month ago, as was then pointed out, is not confined to the United States, though its most striking symptoms may have been exposed through the operations of certain New York banks now in process of reorganization. It is possible to assert confidently, however, that business conditions, so far as America is concerned, have shown a decided improvement during the month, and that the general feeling is a hopeful one, though the volume of trade remains on a lower scale than usual and the interruption of credit and confidence has not been fully recovered from.

The prices of shares in the leading railway and industrial corporations have shown a decided advance above the lowest quotations during the recent depression. This has been due, in part, to the tendency of people with money to invest to take advantage of the opportunity to buy on better terms than usual. The number of shareholders in such corporations has increased very largely of late. A statement relative to eight of the most important railways shows that whereas the total number of shareholders at the beginning of the year was 86,700, it was lately 123,844. This signifies a more general distribution of wealth, which is a desirable condition, but it could not have occurred but for the fact that the public have a large reserve buying power. At the same time the transfer of so many shares of stocks at reduced prices means forced sales on the part of the former holders, who for the time being must curtail their purchases of commodities, with the result of lessening the current business of factories and merchants.

A better feeling is reported in the iron and steel industry, though in this as in all other lines production is being restricted to actual wants. But there is some inquiry for near future wants, indicating that plans are under way for coming construction. This industry is mentioned on account of its great relative size, and the fact that its condition is regarded generally as virtually a barometer of trade. The situation in the rubber industry is apparently better than could have been stated a month ago. Then reports were current of shutdowns about to occur in a number of large mills, most of which have not taken place. Some notices of shutdown have been recalled, and mills that were closed have been reopened. It is true, however, that the production of rubber goods has been kept down to the line of actual demand. The month's advance in crude rubber prices, though slight, may be regarded as favorable, indicating a returning demand for rubber.

The foreign trade of the United States is now larger than at any former period. While students of the business situation refer to the recent crisis as a result of many months of development, both the imports and exports of merchandise for the first eleven months of 1907 were largely in excess of those of any previous eleven months. There appear, in fact, no indications of other than a favorable character, unless the fact be noted that very many people appear to take it for granted, in advance, that the year of a presidential campaign, such as this is to be, will be marked by a reduced activity in business.

CONCERNING SYNTHETIC RUBBER.

JUST why so many people think that they achieve synthetic rubber, and why so many more—rubber planters, importers, and manufacturers—are fearful that it will come and in some way upset their business, it is hard to imagine. Reviewing the year's progress in this line the producers of rubber by artificial means have done everything but produce. Indeed, they seem to lack knowledge as to what synthesis is. It is specifically the building up of complex compounds by special reactions, whereby their component radicals are so grouped that the resulting substances are *identical in every respect with the natural articles.*

The producers of so-called synthetic rubber group themselves into three classes. The first makes something of the oil substitute type that may be used in connection with india-rubber, but that has no particular value used alone.

They hypnotize themselves into believing that it is practically rubber.

This is not synthesis; it is silliness.

The second class begins with crude rubber, fine Pará preferably, doctoring it with something like oil of wintergreen to thoroughly disguise it, and by dark and mysterious ways and sleight-of-hand performances, produce for the edification of capital what they call "synthetic rubber."

This is not synthesis; it is sin.

The third class embraces honest, usually aged scientists, who buy most of the ingredients for secret formulas, upset all rules governing chemical reactions (not knowing at just what point the inventor slips the ace out of his sleeve), and produce "synthetic rubber."

This is not synthesis; it is senility.

Not that it is claimed that synthetic rubber will never be attained. It may be. But its first cost for years will probably make it only the plaything of the laboratory. Indeed, so far distant does the production of synthetic rubber seem, when one reviews the attempts towards its production, that it is safe to say that when it does appear the cradles of the land will also be filled synthetically.

Not to hit in any way the honest seekers for this ideal product, but for the guidance of such geniuses as the one who is now in enforced retirement because of his synthetic camphor claims, and who deserves "several years" for robbing certain New Yorkers by his "synthetic rubber" claim, the following working formula is submitted:

10 pounds Pará rubber.
1 gallon benzol
1 ounce oil of wintergreen.

Mix thoroughly and evaporate the solvent, then thoroughly mix

15 parts above mixture.
10 parts ignorance.
25 parts avarice.
50 parts duplicity.

Compound in secret.

AMERICAN IMPORTS OF TIRES.

THE United States customs returns continue to record imports of rubber manufactures on an increasing scale, but fail to indicate the particular kinds of goods to which the increase relates. Up to a decade ago the total of such imports amounted to only a few hundred thousand dollars worth in a year, whereas for the last fiscal year the figures reached two and a half millions. The details for three fiscal years, at intervals of five years, may be summarized as follows, the figures embracing all goods classified under the tariff act as manufactures of india-rubber and gutta-percha:

From—	1896-97.	1901-02.	1906-07.
Germany	$155,466	$301,325	$1,095,660
France	80,468	120,099	827,873
Great Britain	157,919	120,782	266,711
Other countries	1,294	35,330	266,603
Total	$395,147	$577,536	$2,456,847

It is safe to assume that no rubber footwear worth mentioning is imported into the United States. Nor do imports of belting, hose, or other staple lines of mechanical rubber goods figure in our trade. Certain surgical goods, particularly of hard rubber, have always been embraced in the imports, but the improvement in the output of American factories in this branch renders it unlikely that their importation is on the increase. Probably more rubber toys are coming in, owing to the ingenuity of certain European factories in fashioning such articles on original lines and in attractive fast colors, but the increase under this head is not likely to be enough to account for the large totals shown in our table.

The one important line which remains to be mentioned is motor tires. That the importation of tires is considerable is a matter of common knowledge, and if an analysis of the trade were made it is possible that the gain in tire imports would account for a large part of the difference between $577,536 five years ago and $2,456,847 for the fiscal year last closed. The gain has been principally in the imports from Germany and France, the foreign countries whose tires are bought most largely in America. The gain shown in imports from Great Britain has been chiefly in gutta-percha—a stray fact which the customs returns do reveal. One more item in the table is $266,603 worth of imports from "other countries," against about one-eighth as much five years ago. It may be mentioned that the countries figuring most largely in this gain are Italy, Belgium, and Austria, all of which are now shipping tires to America.

It may be pointed out, however, that nothing stated above indicates any decline in the rubber industry in the United States. While we are buying more rubber goods abroad we are exporting more. And some light is thrown upon the great advance in the home consumption of goods by the fact that during the last fiscal year the imports under the headings of rubber and gutta-percha (including scrap) reached a total of 135,283,581 pounds, against 90,684,969 pounds five years ago, and 40,346,059 pounds ten years ago.

GERMAN SEA CABLE INDUSTRY.

THE establishment in Germany within a few years past of a submarine cable industry on a scale which permits of competition with the world has been an accomplishment which would have justified a less modest celebration by its projectors than they have been content with. There may be those who would consider it an indifferent matter where a new factory is to be located; is it not a mere matter of capital and technical knowledge and the employment of workers? But this view was long disputed in high places. Only a few years ago, when the United States government was planning to lay cables to the new insular possessions, the idea was accepted even by many Americans that such cables could not be made in this country because there were no long

established cable works here, and no experienced cable makers.

It happens that the government did contract with American firms for the few thousands of miles of cables needed, and though these firms had not before made any submarine cables, their product has proved wholly satisfactory in practice. This successful result, however, attracted less attention than the simultaneous building up of a cable industry in Germany, for which several reasons may be suggested. No new company was formed to build the American cables, and no new factory was set up; the average citizen didn't know that any cables were being made and laid, and doesn't know to-day that the Philippines and Alaska lines were made in works abutting on New York harbor. The government gave out the contracts as a matter of routine, without attracting notice from the newspapers, and the details are confined mainly to official reports of a character little read by the public.

In Germany, on the other hand, the establishment of a submarine cable industry appealed alike to the interest of the government, industrial circles, and the general public, as a step in carrying out the deep seated German instinct of industrial progress and industrial independence of the world. Not that every soul in the German empire knows or cares about the new works at Nordenham, but none the less it is a subject for national pride that when Germans cable across the Atlantic their messages are carried by lines owned in their own country, and by lines which they were not obliged to have built abroad. And gradually the same is becoming true of German cable connections with the rest of the world.

The new German cable industry has benefitted by the support of the government, of course, as all good industries in that country do, but apart from this it has become a solidly founded commercial enterprise, paying dividends on the money invested in it, and giving regular employment to a considerable force. And when next a submarine cable is to be ordered by an American company it will not be surprising if the Germany company tender for the work. Every reader is free to draw his own conclusions from these facts, but one point that ought not to be overlooked is that an industry does not require fifty years of experience in order to turn out good work.

THE ONE HUNDRED PER CENT. DIVIDEND of the Dunlop Rubber Co., reported in our news columns, must be studied in connection with the actual resources of the company, and not merely with its stated capital. The company is in the same boat, of course, with the Dunlop tire company, and it is a simple matter of bookkeeping whether one corporation or the other is credited with large dividends. All the same, the Dunlop business for the past year appears to have been very profitable.

AN INSULATED WIRE EXPERT, a recent contribution from whose pen is summarized on another page, has a fashion of talking which may be described as "hitting out from the shoulder." He asserts that Pará rubber is not essential for good insulation work, that it is a mistake to test rubber insulation by stretching until it breaks, and that reclaimed rubber is good material for insulating compounds. These points may not be new in the industry, but they are to most people who prepare specifications for insulated wires. But the most important suggestion in Mr. Hall's paper, to our mind, relates to manufacturers in this branch and their customers arriving at a better understanding as to what goods are wanted and how to provide them.

WIRELESS TELEGRAPHY "HAS ARRIVED," so far as we can see, to the extent of rendering a desirable and important service to man. Whether the wireless services now existing are working at a profit, we have no means of knowing, but as a rule most services of value do pay their expenses, and more. At the same time, it does not appear that the world's systems of land and submarine telegraphs are in danger of being put out of business. We are convinced that there is room for cables and "wireless" at the same time, and has been pointed out in these pages in the past, the more the new system of telegraphy is developed, the greater will be the demand for insulated wires—which is coming to mean rubber insulated wires.

SYNTHETIC CAMPHOR HAS APPEARED AS A COMMERCIAL PRODUCT, and if it should prove a success it will mean much to the celluloid trade, which in turn is of importance as a competitor, within certain limits, of the rubber industry. But the production of an artificial camphor does not of itself prove that an artificial (or synthetic) rubber is any nearer discovery than in the days when 50 cents a pound for fine Pará was almost prohibitive.

THE UNEXPECTED INFORMATION APPEARS in the usually accurate *Harper's Weekly* (New York) that "several million tons of rubber are annually converted into tires in this country." Then it must be that somebody is actually making artificial rubber and getting it into use, since we can find no evidence of so much natural rubber in existence.

THE QUALITY OF CEMENT.

IT is not unusual, in the handling of rubber cement, to find a great variation in the product put out at different times by the same manufacturer. This is apt to be due to the nature of the naphtha used in making the cement. The case is mentioned of a large cement manufacturer who ordered a barrel of 72° sweet naphtha and received a barrel billed for 72°. On investigation the material proved to be one-half 68° and one-half 76°, the whole averaging 72°. But on the principle that every chain is no stronger than its weakest link, and if in the 68° naphtha there was contained a certain amount of oil, mixing it with an equal amount of 76° naptha would not eradicate that oil from the cement, which for some uses would prove less satisfactory on account of the oil. The higher the test the higher the evaporation qualities of the naphtha, and the quicker it will dry. It is an open question among cement men whether the mixture of different degrees of naphtha will blend the evaporating qualities of that naphtha or not, and there are some men who contend that cement made in this way dries unevenly.

AT the annual meeting of the Amazon Telegraph Co., Limited (London, November 19), the accounts showed a net profit for the last fiscal year, after allowing for debenture shares, of £8728—a better showing than usual on account of an exceptionally large rubber crop. The business has been operated hitherto at a loss, however, and after deducting the profit referred to there remains a debit balance of £65,878. No dividend has ever been declared, and the Pará-Manàos cable continues to be worked with occasional interruptions. During the year 20 miles of the cable had to be abandoned and relaid.

THE EDITOR'S BOOK TABLE.

THE ANDES AND THE AMAZON. LIFE AND TRAVEL IN PERU. By C. Reginald Enock, F. R. G. S. London: T. Fisher Unwin. New York: Charles Scribner's Sons. 1907. [Cloth. Large 8vo. Pp. 16 + 379 + plates and map. Price $5 net.]

THE capable observer who is the author of this volume—the result of much study at first hand—discerns signs of a new era in the development of Peru, a country already becoming of great commercial interest to the outside world, which is likely to have a deep impress upon its people. Peru, he observes, is endowed with everything in the mineral and vegetable world which could make the inhabitants prosperous—the products of the tropical, semi-tropical, and temperate zones; it is a land of practically undeveloped resources which are becoming increasingly tempting to foreign investors. It is predicted that the completion of the Panama canal will give a great impetus to development of this character. The country likewise possesses a long established civilization which needs only to be brought into closer touch with that of other countries to remove Peru speedily from its isolation of the past and inspire it with ideas of modern progress. The Indians, who form a great part of the population, are not to be referred to as civilized, of course, but they are docile and peaceable, and capable of being made to share in the work which is to develop a new Peru.

Commerce, says our author, is the stimulus that is disseminating knowledge of previously little known regions of Peru, particularly those east of the Andes, and commerce there means the trade in india-rubber. "This is the golden fleece of the modern Argonauts upon these savage rivers; this is the prize for which men sell their souls and destroy the souls and bodies of their fellow creatures as they did in days gone by for gold; for, written largely on the history—and it is only a history of to-day—of this modest and useful product, is the iniquity of business. Cruelty, cheating, oppression, slavery, and even murder have characterized it, from the Congo to the Amazon. Evil is being done in order, we trust, that good may come of it—ever the Jesuitical characteristic with which nature seems to work through man and commerce." At least two commercially valuable species of *Hevea* abound in the Peruvian *montaña*, and the *Castilloa*, which produces the "caucho" of the trade. The output of Peruvian rubber is increasing rapidly of late, and is now shipped direct to New York and to Europe by ocean-going steamers, which ascend the Amazon to Iquitos.

This book embraces a fine map of Peru, which we notice includes the region of the Putumayo and Caquetá rivers, rich in rubber, and referred to recently in this journal as the subject of arbitration between Peru and Colombia.

DISTRIBUTION OF THE PROTEIN IN PARA RUBBER. By D. Spence, PH.D. Liverpool: Institute of Commercial Research. 1907. [Paper. 8vo. Pp. 16. Price, 6 pence.]

METHODS OF ANALYSIS OF RAW RUBBER. By D. Spence, PH.D. Liverpool: Institute of Commercial Research. 1907. [Paper. 8vo. Pp. 16. Price, 6 pence.]

THESE papers are No. 10 and No. 13, respectively, of reprints from the *Quarterly Journal* of the institute named above, which is an important branch of Liverpool University.

COTTON MOVEMENT AND FLUCTUATION. 1902-07. THIRTY-fourth annual edition. New York: Latham, Alexander & Co. [1907.] [Cloth. 8vo. Pp. 189.]

THIS is a yearly production of an important New York firm of cotton commission merchants, whose name appears on the title page, and is probably the most comprehensive and valuable compendium of cotton facts published. It relates to stocks, consumption and prices, in America and Europe.

HENLEY'S TWENTIETH CENTURY BOOK OF RECIPES, FORmulas and Processes. Edited by Gardner D. Hiscox, M. E. New York: The Norman W. Henley Publishing Co. 1907. [Cloth. 8vo. Pp. 787. Price $3.]

HERE are collected 10,000 "scientific, chemical, technical, and household" recipes, etc., intended for popular rather than for factory use, and relating to practically every substance or material in modern economic use. Several pages are devoted to rubber cements, waterproofing processes, and so on, containing information which doubtless may be turned to practical use, though of course not presented with a view to guidance in factory practice.

IN CURRENT PERIODICALS.

KURZE Ubersicht über alle bisher auf *Ficus elastica* beobachteten Pilze, nebst Bemerkungen über die parasitisch auftretenden Arten. By Dr. S. H. Koorders. [Review of blights which attack the *Ficus* rubber species.]—*Notizblatt* des Königlichen botanischen gartens und museums zu Berlin, IV-40 (Oct. 10, '07). Pp. 297-310.

Rubber Insulation for Conductors. By Fred J. Hall.—*The Electrical World*, New York. L-21, 22 (Nov. 23, 30, '07). Pp. 1009-1010; 1053-1056.

Le Polymorphisme des *Mascarenhasia* de l'Ambongo et du Boina. By MM. Jumelle, Perrièr—*L'Agriculture Pratique des Pays Chauds*, Paris. VII-55 (Oct., '07). Pp. 283-296.

Une Nouvelle Essence Forestière du Tonkin Productrice de Caoutchouc. By Dr. Ph. Eberhardt.—*Bulletin Economique*, Hanoi. X-65 (July, '07). Pp. 576-585.

BETTER RUBBERS FOR LESS MONEY.

A PRICE list of rubber footwear issued by an important firm 30 years ago has come to the notice of Boston *Boot and Shoe Recorder*, which has instituted a comparison of its figures with the standard lists now in force. The result of the comparison is thus summarized by the *Recorder:* "The list gives 65 items, and of these the present net prices show an increase in only nine items, while there is a decrease in 25. The others either show no change or no corresponding styles are to be found in present lists. It wil be noticled that the increases are mostly in the items of boys' and youths' boots. Overs and sandals show little change, and the principal reductions are in boots, arctics and heavy overs." But the question of prices is not all. As the *Recorder* says: "A comparison of quality would show a remarkable improvement for the present styles in almost every detail. The compounds of the rubber are more reliable, the work is better put together and stylish effects are given in fitting that would be considered impossible thirty years ago. Then, too, the list of 65 items was considered ample description of the styles offered. Now a similar abbreviated list not counting specialties, would run considerably over 200 items."

A FRENCH RUBBER DIRECTORY.

OUR excellent contemporary, *Le Caoutchouc et la Gutta-Percha*, the organ of the rubber trade in France, has brought out a "Universal Directory of the India-Rubber, Gutta-Percha, and Allied Industries," evidently with a view to making it an annual publication, the first issue being dated 1908. It fills nearly 500 pages, exclusive of advertisements, and the index gives 177 headings under which firms and their addresses are classified, though this embraces many duplications—as "tires" and "pneumatics" for the same list. But all the headings do not relate directly to rubber. Asbestos is included and various fabrics and ingredients used in the rubber manufacture, machinery, and so on. The first classification in the book is laboratory appliances and the last waterproof garments, between these appearing all the various branches of rubber goods production. Naturally the lists are fullest for France, but manufacturers and dealers are included in the other leading countries of Europe and the United States of America. The editor has not always distinguished properly between makers of goods and dealers, and the book bears evidences of having beent set up by printers unfamiliar with the languages in which some of the firm names are expressed. We doubt not, however, that the trade will accept the invitation to suggest corrections where any may be needed, and that the work will become increasingly valuable with each new edition. The address of the publishers is 49, rue des Vinaigriers, Paris, and the price of the book 5 francs.

THE Vallambrosa Rubber Co., Limited.—An *interim* dividend at the rate of 50 per cent. for the half year ended September 30, 1907, was to be paid on December 24. The disbursement amounted to £12,650 [=$61,561.23], less income tax.

Rubber Insulation for Electrical Conductors.

THE general subject of the use of india-rubber for the insulation of electric wires and cables has been treated at some length recently in *The Electrical World* (New York), by Fred J. Hall,* in a manner which brings out some practical suggestions of more than ordinary interest. Referring to grades of rubber, he mentions that Pará was specified uniformly for insulation work at a time when Africans and some other sorts came to market in a very crude form, being dirty and improperly cured. These defects have been largely overcome, and to-day rubber compounds can be made containing no Pará that will have as long a life and give as good practical results as an all-Pará compound.

The most important properties of rubber, considered from the standpoint of insulation, may be grouped under the heads (1) nonhydroscopic; (2) dielectric; (3) mechanical strength; and (4) elasticity. All these, except the nonhydroscopic property, are materially affected by processes of manufacture, and each one is developed more or less at the expense of the others. In selecting a rubber compound for insulation the manufacturer must consider many points, but as a rule he has no difficulty in determining the quality of the compound and the method of treating it so as to produce the best results at any given price. The stumbling block appears when he tries to harmonize his ideas, based on practical experience, with the theories of the purchaser as expressed in the specification.

The purchaser really has no interest in the composition of the rubber compound or in the factory method of handling it. His sole interest is to secure an insulation of high practical efficiency for the conditions of service—*i. e.*, to purchase cables that will work for a long time and give a minimum amount of trouble. The purchaser may be convinced that this result can be obtained by the use of fine Pará rubber and draw a specification intended to preclude the use of anything but fine Pará. But he may subject himself to useless expense and force the manufacturer to produce an article which is higher in price and no more effective for the condition of service—perhaps less so—than could be produced if the manufacturer was allowed to exercise some discretion in the matter.

The writer next considers the various tests by which the purchaser endeavors to secure what he considers the best insulation. When a specific compound is called for it is usually one containing 30 per cent. of Pará rubber. and in considering various tests the writer has such a compound in mind. Pará rubber being the first to become well known, it was made the standard, and the insulating value of other rubbers was fixed by the extent to which they were shown to possess chemical and physical properties identical with Pará. It has been assumed, for instance, that unvulcanized rubbers containing a higher percentage of extractive matter (oily or resinous substance) soluble in heated acetone are of less value as insulators, but this is erroneous. The percentage of this resinous or extractive matter varies widely in different brands, nor is the quantity constant in the same brand. As pointed out by Weber, the presence of these resins in crude rubber does not appear to affect its stability in an appreciable degree, though it does affect vulcanization when it exists in larger quantities than is generally found in fine Pará. In such cases more sulphur as well as a change in the practice of time and heat may be necessary to prevent under-vulcanization. Hence a rubber containing a higher percentage of resin than Pará may be as effective an insulator if properly vulcanized.

It is a mistaken idea that the resin in rubber is highly volatile and that when this disappears the rubber is lifeless and brittle. In fact, the resin is not volatile; the hardening of the rubber is due to the drying out of the rubber and oxidation. Dr. Esch says that the best rubber articles are not made from pure caoutchouc, and calls attention to the increase "as to elasticity and resistance to tearing asunder" in tire inner tubes when 0.5 per cent. of pitch is added to the rubber. Now there is probably no article into which rubber enters where it is more important to increase the strength of the rubber and to prevent hardening than tire tubes, and it has been proved that this is best done by the addition of an ingredient possessing a high percentage of extractive matter of the same general character as that obtained from the rubber Vulcanized rubber always shows an increase in extractive matter over the pure unvulcanized gum, due to chemical changes the nature of which is not fully known. Sulphur is also soluble in acetone, and the free sulphur will appear in the acetone extract.

The writer regards the worthlessness of acetone tests as frequently made, and the injustice that may be done to a manufacturer by them, as obvious. He would consider that if other tests were satisfactory there would be no danger of over-adulteration in a compound showing 8 per cent. of extractive matter, including free sulphur, although purchasers are inclined to specify fine Pará with the idea that the unvulcanized rubber contains but 1 or 2 per cent. of resin, but it should be borne in mind that such results are obtained from specially selected samples. Nor is the ash test as ordinary practiced of more real value. The writer has seen variations of 6 per cent. in the ash obtained from the same compound due to inaccuracy in weighing and carelessness in burning.

The writer next treats of the stretch test for rubber insulation. Elasticity being the most obvious property of crude rubber, it has been assumed that only good rubber compounds are elastic, and the nonelastic are poor, but precisely the same compound, by changes in the quantity of sulphur and method of vulcanization, can be made highly elastic or brittle as glass. Lack of elasticity in a vulcanized rubber compound therefore is no proof of inferiority. The writer presents considerations which lead to the conclusion that a very low grade rubber compound cannot be vulcanized so as to meet the ordinary stretch test, from which it follows that the stretch test does prevent the use of low grade compounds. But such compounds do not meet the maximum acetone test, nor would they be likely to meet the electrical tests. That is, there are tests besides that for elasticity which insure the purchaser against the excessive use of low grade rubbers. Hence it is unwise to insist upon a test that forces the manufacturer to sacrifice qualities in his compound to a high factor of safety. The factors of time and heat in vulcanizing should be regulated by the mass to be vulcanized. When the surface of the outer layer of a thickly insulated conductor has been vulcanized to a point where the elastic property is greatest, the inner layers, particularly the portion lying next to the conductor, are undervulcanized and a compound undervulcanized is highly perishable.

The principal contributors to the factor of safety to rubber insulation for high tension are firmness and density, both of which are antagonistic to stretch. Specifying a stretch test for high pressure insulation invariably means reducing the factor of safety. [The editor of *The Electrical World* says in commenting on this point: "One might as well endeavor to determine the breaking strength of the Brooklyn bridge by loading it until it broke."]

It has been mentioned already that rubber compounds of high efficiency can be made in which lower priced rubbers than Pará

*Mr. Hall has for a number of years been connected in a managerial capacity with the well known India Rubber and Gutta Percha Insulating Co. (Dr. Habirshaw's works), at Yonkers, New York, and has therefore an intimate acquaintance with the general subject of which he treats.—THE EDITOR.

enter and the difference in price is not a fair indication of the difference in quality The arguments in favor of using the 30 per cent. Pará mixture are (1) that being a standard it is likely to run more uniform in quality; (2) that having been long in use it has had more opportunities to prove its merits under trying conditions; (3) that in case of trouble the party responsible for the installation would be subjected to less criticism if a standard was used. Yet there are times when the additional expense necessary to procure a 30 per cent. mixture is justified—as for very high voltage, for all submarine work, and when conditions of service are exceptionally severe.

The writer refers to reclaimed rubber in these words: "A manufacturer of insulated wires and cables writes these words with a shudder and speaks them in a whisper, because to the purchaser's mind they stand for all that is dangerous in the insulation. Long ago the manufacturer learned that the judicious use of reclaimed rubber in conjunction with raw rubber of all kinds distinctly improved his compounds. He has not dared to breathe this secret, however, for fear of being blacklisted." Mineral matters used in rubber compounds have little dielectric property; they give body to the rubber, but they are inert and little real assimilation takes place. But good reclaimed rubber properly treated has considerable mechanical strength, high dilectric property, and long life; it is thoroughly assimilated by the raw rubber and has a distinctive advantage in the matter of cost. Like many other excellent things it is the abuse not the use of reclaimed rubber that is bad; the important point is the percentage and quality of raw rubber used. It is time that the value of reclaimed rubber became as generally understood as is the danger of its excessive use. It might be mentioned that if reclaimed rubber had not come into use the cost of many articles in which rubber enters would be so high that serious consequences would result.

A NEWSPAPER ON "WIRELESS."

APROPOS of the recent opening of a wireless telegraph service across the Atlantic, on a commercial scale, by the Marconi system, the New York *Times*, in an editorial article printed on November 18, read:

"No better evidence is required of the utility of the Marconi wireless telegraph system in the service of news from abroad than the fact that considerably more than a page of fresh foreign news and gossip in the Sunday *Times* was sent from Clifden, Ireland, to Glace Bay by that system, and delivered in Times square quickly and accurately. Our wireless dispatches from Europe come to us in excellent shape, comparing favorably with those sent by cable, and the facilities of the wireless system improve weekly.

"The cable companies will do well to recognize the significance of the situation. The indisputable success of the wireless does not mean a restriction of the volume of their business or a decrease in their profits; quite the contrary. It means that telegraphing between Europe and America will become much more common. It must also become cheaper. The 'wireless' is not going to put the cables 'out of business,' as there will be plenty of work for both systems; but for the cable folks to 'stand pat' and decry the 'wireless' seems a foolish policy.

"The wireless transatlantic service is no longer experimental. Marconi has invented and developed it, and put it successfully in operation. It is a rival to the cable service, but not necessarily an unfriendly rival. We cannot have too many ways of speaking across the ocean."

* * *

A LETTER from the New York *Times* to THE INDIA RUBBER WORLD dated December 12 says: "Our attitude toward the transatlantic wireless service is correctly represented in the article you quote, and is now, perhaps even more favorable than it was at the time the article was printed. for since then we have succeeded in establishing as a regular feature of the Sunday *Times* an entire page or more of dispatches from the old world, transmitted by this system."

* * *

THE announcement about the middle of October that regular wireless service between America and Europe had been established commercially is regarded by *The Electrical Review* (London) as having been premature. Our contemporary says: "Just as in 1903 when a similar attempt was made resulting in a complete fiasco, so now in 1907 enthusiasm has outrun discretion, and the trumpetings of a few weeks ago are succeeded by a dead silence in the press." Professor R. A. Fessenden, writing to the *Review*, from the American coast, of the results of the working of the Marconi system on October 18 and for a few days thereafter, points out that such troubles were experienced as low speed, lack of secrecy, and atmospheric disturbances. He asserts that "there is at the present time no operation [of wireless] which can properly be called commercial in the same sense in which we speak of the commercial working of cables." Furthermore, he asserts that the Marconi system as at present installed is not capable of commercial operation. Professor Fessenden, whose character as an expert is vouched for by the *Review*, expresses the opinion that the premature publication of exaggerated reports as to results obtained in wireless telegraphy has been harmful in that it has resulted in many persons losing their savings who could ill afford to do so, and that the whole business has been brought into disrepute with the public. Moreover, this disrepute has been responsible for the failure of various governments to grant permits within their territory for the erection of stations for working wireless services. Professor Fessenden supports his contentions in part by recording the history of a number of messages sent by the Marconi system, showing in how many cases it was necessary to repeat them even when transmitted at a very low rate of speed.

SYNTHETIC CAMPHOR IMPORTED FREE.

SYNTHETIC camphor evidently has reached the position of a commercial commodity. An importation of such material at New York was assessed for duty by the port collector as "refined camphor," against which the importers protested. The board of United States general appraisers sustained the protest, and their decision was confirmed on review before the United States circuit court for the Southern district of New York. (*Treasury Decisions*, December 5, 1907.) The court says that "synthetic camphor" crept into commerce after the date of the tariff act. It is made by a secret process, but has come to be known as camphor and to be used as a substitute for camphor. Hence, following precedent, it must be classified, in the customs, as camphor. Crude camphor cannot be put to any important use, for which reason it was placed upon the free list in 1897. The celluloid manufacturers, who are large purchasers of crude natural camphor, refine it upon their own premises. If it should be shown that synthetic camphor as imported is entirely fit for use in the arts as received, it ought to pay duty, but this was not proved to the satisfaction of the court. Natural camphor now comes in from Formosa that is in a pretty fair condition of purity, with a high melting and boiling point, and quite clean looking, but it is classified as "crude" and is admitted free. The court holds that it would be unfair to levy tribute on such artificial camphor as that in issue and permit such a product as the improved Formosa to come in free.

The Japanese government are encouraging the planting of camphor trees, and the *Bulletin Economique*, of Hanoi, reports that 6,000,000 or 7,000,000 young trees have been set out within a short time, but it does not expect to see them productive below the age of 10 years.

NEW REPAIR VULCANIZING PROCESS.

AFTER pointing out the drawbacks or disadvantages attending the various methods of cure in use hitherto for applying repair patches to tire tubes, Emile Allard, writing in *Omnia*, a French journal, describes a new vulcanizing fluid, suited for tire repairing, and sold on the market under the name "Sulfumate of Camphor," its composition being kept secret. The new preparation is intended to be used in cold curing, as distinguished from repairing operations which call for vulcanizing apparatus.

The writer quoted is of the opinion that the solvent used is tetrachloride of carbon. The "sulfumate" begins to boil at 79.5° C. [= 175.1° F.], which figure is close to the boiling point of tetrachloride. Moreover, by distillation, M. Allard has been able to isolate a colorless liquid which boils at 78.1° C., the identical boiling point of tetrachloride of carbon. The "sulfumate" possesses therefore the advantages of the tetrachloride—absolute inflammability and absence of danger of explosion. As to the vulcanizing compound, it appears to be chloride of sulphur, containing sulphur in solution. When mixed with water and stirred the "sulfumate" precipitates sulphur in abundance. Moreover, the "sulfumate" evaporates in the atmosphere, the same as solutions of chloride of sulphur.

It is claimed for "sulfumate" that it is a stable compound and that its action does not vary, like that of the protochloride, with meteorological conditions. The vulcanizing action of the compound is slower than that of the ordinary protochloride solution, which permits workmen engaged in re-treating to apply the tread in large sections at a time. If a piece of crude rubber is dipped into the "sulfumate," it at first softens slightly, which proves that the liquid impregnates the mass regularly, such action being favorable to the uniformity of the vulcanization. Soon, however, the rubber sets, giving a very dense product.

It may be asked what is the cause of this particular property of this product, the slowness of its vulcanizing action? Undoubtedly its low content of chloride of sulphur. It may also be, says M. Allard, that the camphor which the product seems to contain, in a smaller quantity, has a tendency to retard the action of the chloride of sulphur on the rubber. This, however, remains to be proved. The late Dr. Weber, in writing on the Parkes process, said: "The present method of vulcanizing rubber by means of chloride of sulphur is very irrational, as it cannot lead to a homogeneous vulcanization. A process permitting homogeneous vulcanization, by means of chloride of sulphur, would be of incalculable practical value."

However valuable this "sulfumate" may prove to be, ultimately, it is likely to be received at first with some caution. To be wholly frank, those who use the cold curing solutions such as are sold in small packages and made up of new and secret combinations of sulphur, chloride and bisulphide of carbon are growing wary. They have been bitten more than once, and while sulfumate of camphor may be excellent, it will have to be proved so before it is widely adopted.

RECLAIMING AND REPAIRING PROCESS.

MR. T. GARE, of New Brighton, England, has established a small factory at Hazel Grove, near Stockport, England, to develop a new patented process for reclaiming and repairing old rubber articles and altering the shape of new articles of rubber already vulcanized. For example, he takes an old worn solid tire, puts it in a mold together with powdered solid tire scrap, and by intense heat and pressure fuses the mass and turns out a new solid tire "apparently better than the original." This better appearance is due to the fact, so he says, that any first mixing, however well done, is not homogeneous. His high heat completes the mixing, while the pressure prevents the rubber from being injured. The process is applicable to heavy molded goods only. Just how he gets pressure in the molds when the mass fuses without a part of the contents escaping by the "spewing vents" does not appear.

It is gossiped that the Dunlop syndicate offered Mr. Gare £100,000 for his invention, which he refused, as he desires to license individual manufacturers to use his process rather than tie it up to one concern. It is further rumored that Charles Macintosh & Co. and David Moseley's Sons have looked into the process and may use it.

THE SYNTHETIC RUBBER SITUATION.

WRITING in the London *Daily Mail*, Ferrar Fenton expresses surprise at the unbelief expressed by some experts as to the possibility of producing synthetic rubber. The study of this, he says, has afforded a fascination for him for forty years, and ten years ago he succeeded in producing a synthetic rubber which added to the life of pure gum. Wishing to satisfy himself that his samples would stand the test of time, he holds them to-day looking as good, he says, as when they were made. Mr. Fenton writes that two years ago he established a factory in the United States, to work out his latest invention in synthetic rubber, and "the success of which is already assured." Mr. Fenton does not happen to mention what was formerly called Fenton's Patent Artificial India-Rubber Syndicate, Limited, which in 1898-99 was doing business in England, but which has not been heard of in the trade for several years. He visited the United States in May, 1906, in connection, it is understood, with the formation of the National Co., at Chicago, to work his patents in this country.

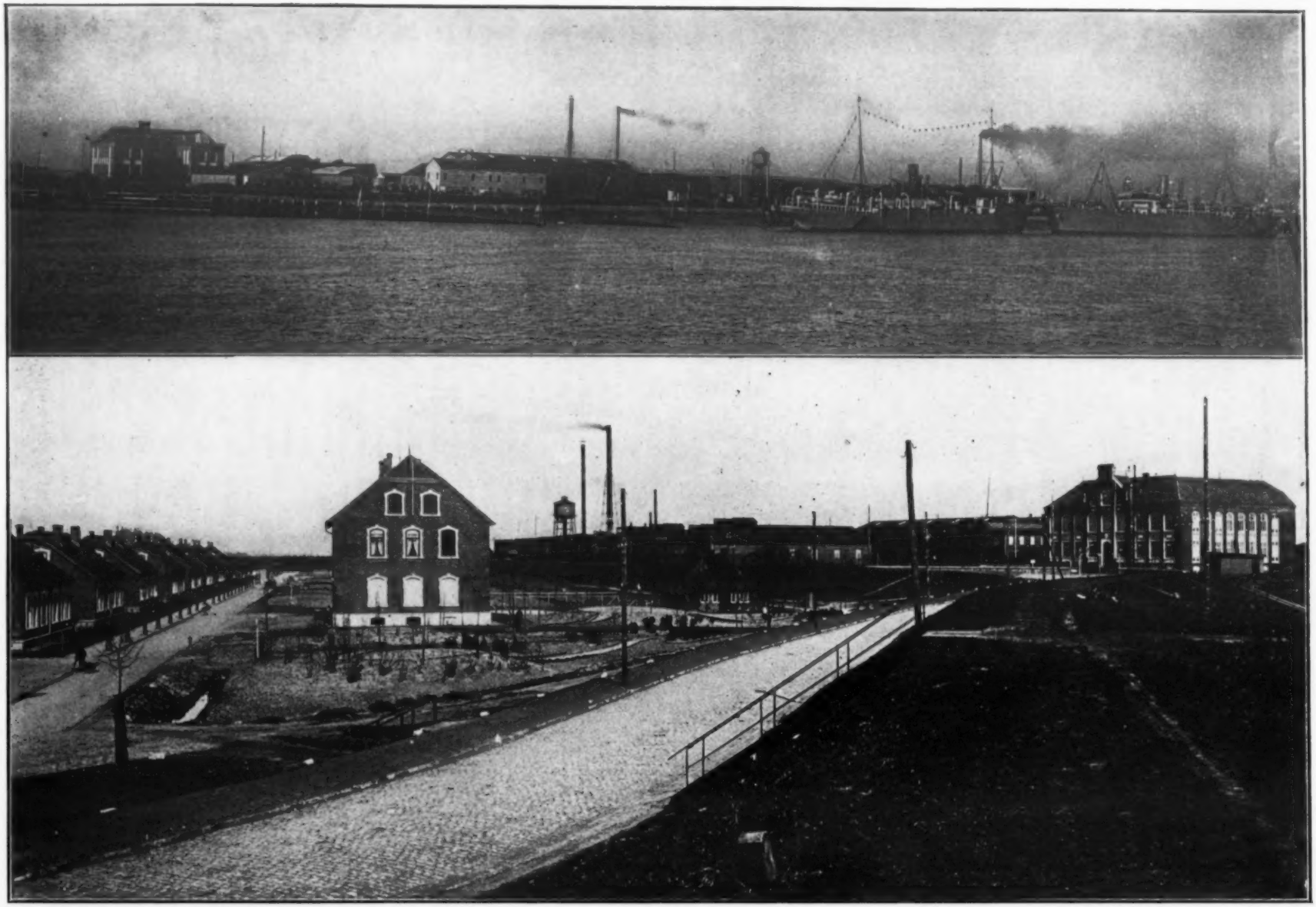
Now that Mr. Fenton is really at work it is of interest to consider what his product really is. The product which he brought out ten years ago, and which it is fair to suppose he thought was synthetic rubber, was made of oxidized oil mixed with tar and treated with dilute nitric acid. The resultant mass was about as resilient as Roquefort cheese and not as pleasantly odored. It was not rubber; it did not look like, smell like, compound like, or act like rubber. It was an oil "sub." pure and simple, and for the sake of Mr. Fenton, who doubtless is an honest but mistaken gentleman, it is to be hoped that it is a fairly good one.

THE SYNTHETIC RUBBER CO.

A LONDON firm of brokers in rubber planting shares reports "In good quarters it is told that an American syndicate has been formed for the manufacture of rubber by a certain chemical process which has been discovered. The names of strong people are mentioned as being members of the syndicate, and to its formation is attributed the recent weakness of the price of rubber and of rubber companies' shares." This undertaking is presumably that mentioned in the last INDIA RUBBER WORLD (page 88) as having been registered in London as the Synthetic Rubber Co., Limited. In answer to inquiries that have been made as to whether this is connected in any way with the Pará Rubber Co. (Bayonne, New Jersey), it can be stated authoritatively that the London company have no relation whatever to the processes of Mr. G. E. Heyl-Dia.

THE Japan Celluloid Co. have begun the construction of a factory at Aboshi. The company's head office is in London, and considerable of the $2,000,000 stock has been taken in England and Germany. It is expected that the company will be able to manufacture a ton of artificial silk and three tons of celluloid per day. Suggestions have not been wanting that the Japanese may yet seek to utilize their control of the raw material to capture also the celluloid manufacture.

A PETITION in bankruptcy has been filed against the Da-an-Nite Auto Supply Co., of New York. Among the creditors are three tire making firms, with claims aggregating $5845.



NORDDEUTSCHE SEEKABELWERKE, AKTIENGESELLSCHAFT (NORDENHAM o/ WESER).

[The upper view shows the works and cable steamers; the lower another factory view and workmen's dwellings.]

Germany's Submarine Cable Industry.

THE first effect of the study of any branch of seafaring is to emphasize the supremacy of the Mistress of the Seas. This is particularly true of the submarine cable industry, where the supremacy of England has been most absolute, and has been maintained since the beginning of the industry.

There are many and good reasons for this ancient monopoly; but believing that competition is the life of trade, THE INDIA RUBBER WORLD has watched with much interest the recent growth of a serious competitor in Germany. The immediate result has been a rapid increase and a renewed interest in sea cable making and laying, which have led to many technical improvements and to a search for other insulators to take the place of the rapidly waning supply of gutta-percha. The excellent chemical and technical ability of the Germans, when applied to this industry, will probably result to the lasting advantage of the world.

The sea cable industry of Germany is represented by the Norddeutsche Seekabelwerke Aktiengesellschaft, located on the Weser river. The founders of this great company fully realized the seriousness of their task, in competing with the Thames; but they laid their plans so carefully and won the support of such large interests, that the business could probably be carried on without the direct support of the German government.

The physical side of the industry consists primarily of wire, insulation, and ships. The contributors to the Norddeutsche Seekabelwerke were the Felten & Guilleaume "Carlswerk," Aktiengesellschaft, one of the greatest electrical wire making firms in the world; Franz Clouth, of Cologne, who ranks among the largest manufacturers of rubber and gutta-percha goods in the world; and the Norddeutschen Lloyd (the North German Lloyd steamship company). The German government offered the company the whole of its trade, gave them suitable tariff protection, and helped them in other ways. As a result, besides the distinction of being the only company in the world manufacturing sea cables exclusively, they have never been able to fill all the orders given them in the nine years of their existence. Besides the government orders they have acquired some business from abroad. The rapidity of their growth has been such, that, judging from this alone, the company may be said to be only at the beginning of its career.

The Norddeutsche Seekabelwerke Aktiengesellschaft was founded May 27, 1899, with an authorized capital of 2,000,000 marks [=$476,000]. Felten & Guilleaume, Franz Clouth, the North German Lloyd Co., and the Deutsch-Atlantische Telegraphen-Gesellschaft were its principal backers. The Land- und Seekabelwerke Aktiengesellschaft was very soon bought, and a cable ship was ordered in England. Work was also begun on the great plant at Nordenham, near Bremerhaven, convenient to the North German Lloyd shipyards.

The company's first cable ship, the *Von Podbielski*, was launched at Glasgow in the fall of 1899. The company had already received an order from the German postoffice for 292 miles of cable to connect Tsingtau and Shanghai. Felten & Guilleaume made this cable, as the Nordenham works were not yet in operation, and the *Von Podbielski* started on her long trip to China. It was a romantic beginning for the company. The ship did her work well, and arrived in the Weser again on February 10, 1901, starting out almost immediately to repair the first German-American cable. This first cable was, of course, made in England, and laid by the English, though owned by the Germans. While it was being repaired, the Norddeutsche company were at work on their first Nordenham product, the Borkum-Bacton cable, connecting England and Germany. This was a high class four-core cable, and it was laid by the *Von Podbielski* in the spring of 1901.

The company had now received several other orders, and these, together with needed docking improvements and the extension of the plant, justified an increase of the capital to 4,000,000 marks [=$952,000].

The most sanguine hopes of the company were now fulfilled by an order from the Deutsch-Atlantische Telegraphen-Gesellschaft for a second cable to be laid between Germany and the United States. On the strength of this the capital of the company was raised to 6,000,000 marks [=$1,428,000]. The Nordenham works were extended and a second cable ship was ordered from the Stettiner Maschinenbeau-A.G. "Vulcan," in Stettin-Bredow, in the early part of 1902. This ship, the *Stephan*, was launched in December, 1902. The headquarters of the company were also transferred from Cologne to Nordenham, and during the whole of 1903 the best efforts of the directors and the 420 workmen were spent in the preparation of the great Atlantic cable, whose total length, from Borkum to the Azores and to New York, is nearly 5,000 miles.

The *Stephan* was only delivered to her owners on March 16, 1903, and she and the *Von Podbielski* immediately began laying the cable. Though a new and untried ship, the *Stephan* worked 205 days out of the 290 days left in 1903. Both ships made two trips during that year, and on April 16, 1904, the *Stephan* left Nordenham for New York, with the last stretch of cable, which measured 2,446 miles and weighed 4,100 tons. Laying from Coney Island outward toward Horta, to meet the *Von Podbielski*, the *Stephan* laid the last lap of the cable at the rate of ten miles an hour in water over 16,000 feet deep, and finished the job in four months under the contract time.

Meanwhile the Norddeutsche Seekabel Aktiengesellschaft had received an order for another cable, which was destined to reflect even more credit upon the company than even the Atlantic cable had done. This order came from the Deutsch-Niederländische Telegraphen-Gesellschaft, a Cologne corporation, and was to connect Shanghai, China, and Menado, Celebes islands, with Yap, in the Loo Choo islands, and connect thence with the American Pacific cable at Guam, in the Samoan islands, a total length of 4,238 miles. While this cable was being made, the Dutch government ordered a cable to connect Borneo and Celebes islands. The Norddeutsche company made this cable, and sold their old ship, the *Von Podbielski*, to the Dutch government. Her name was changed to the *Telegraaf*, and as such she laid the Borneo-Celebes cable. In her stead the Norddeutsche company ordered a third ship, the *Grossherzog von Oldenburg*, from F. Schichau, in Dantzig, and have since used her for a cable repair ship, leaving the *Stephan* free for cable laying.

The company have also filled other important orders, such as connecting Constanza and Kilia, Turkey (245 miles); Cuxhaven and Arendal, Norway (409 miles), and the Moen-Libau-St. Petersburg cable (940 miles), besides making spare cables and repairs; but none of these were brilliant enterprises, compared to laying the Shanghai-Menado-Yap-Guam cable. To carry this great cable, weighing, in all, nearly 9,000 tons, the *Stephan* had to make two trips to the Orient, and she laid it over a rough sea bottom, reaching, at times, a depth of 22,750 feet. On the whole it was a record-breaking performance, which brought great credit upon the Norddeutsche Seekabelwerke Aktiengesellschaft from scientific men all over the world, and was regarded by the home government as a triumph for German enterprise.

While the ultimate purpose of the German sea cable company, of course, was to yield profits, they exerted themselves first to build and lay cables, leaving the distribution of dividends to a later period. The first dividend was declared at the end of sixth business year (1904), amounting to 8 per cent., the capital issue being then, as now, 6,000,000 marks. The dividends

[The upper view shows the works and cable steamers; the lower another factory view and workmen's dwellings.]

for 1905 amounted to 15 per cent. and for 1906 to 5 per cent.—a total for the three years of 1,680,000 marks [=$399,840], besides which substantial reserve funds have been created. The assets of the company at the end of 1906 amounted to 9,456,689 marks [=$2,250,692].

Of the illustrations on an accompanying page the one uppermost gives a general view of the company's works, at Nordenham on the Weser, with their cable steamers *Stephan* (on the left) and *Grossherzog von Oldenberg* seen from the river. The view below is a front view of the factory and (on the left) the workmen's dwellings. The company's board to-day embraces Max von Guilleaume and Dr. Emil Guilleaume, both of Felten & Guilleaume, and Franz Clouth, the Cologne rubber manufacturer.

RUBBER INTERESTS IN EUROPE.

DUNLOP MANUFACTURING PROFITS.

THE accounts of the Dunlop Rubber Co., Limited for the twelve months ended August 31, 1907, show net profits of £300,058 [=$1,460,232.26], which enabled the management to declare a dividend of 100 per cent. The Dunlop Rubber Co. is a subsidiary company of the Dunlop Pneumatic Tyre Co., Limited, and may be described as constituting the manufacturing division of the latter. Its capital is £220,000 [=$1,070,630], in £1 shares, of which 181,181 are held by the Dunlop Pneumatic Tyre Co. The remaining 38,119 shares, not issued until last March, are held by individual shareholders in the Pneumatic Tyre company. It is stated that the total investment to date by the tire company in the manufacturing company has been £225,437, while the dividends have amounted to £586,881, or more than twice the amount of the investment. The market value of the 181,181 shares now held by the tire company was stated recently at about £1,273,167. The Dunlop Rubber Co. was operated for the first year at a loss of £724 15*s.* 7*d.*, since which time the yearly profits have been:

In 1901	£14,097	In 1904	£157,517
In 1902	54,854	In 1905	144,497
In 1903	88,823	In 1906	209,969

The Dunlop Pneumatic Tyre Co., Limited, originally was a tire selling concern, based upon a patent monopoly. Foreseeing that the expiration of the patent would leave them with no substantial foundation, the directors in time adopted the policy of reserving a part of the annual profits for building up a business as rubber manufacturers, which might hope to continue without reference to the tire patents. How successful the new enterprise has been is shown in the business report summarized above. The sources of income of the Dunlop Pneumatic Tyre Co. to-day, apart from the profits as a tire selling concern, are derived also from the manufacturing as carried on in England and also in France and Germany.

GREAT BRITAIN.

THE steamer *Mauretania*, the latest addition to the Cunard line, was fitted with rubber tiling by the India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, of Silvertown.

George Spencer & Co., Limited (lately Spencer, Moulton & Co.), whose factory at Bradford-on-Avon is among the oldest rubber works in England, being identified particularly with the manufacture of railway supplies, have taken on the production of high grade automobile tires.

The Scott Non Skid and Tyre Co., Limited, was registered in London November 6, 1907, with £4000 capital, to adopt an agreement with H. J. Scott, and manufacture non skid appliances for tires of motor cars.

The Whitfield Automatic Tyre Inflator Co., Limited, was registered in London, November 4, 1907, with £5000 capital, to acquire all rights in the United Kingdom and elsewhere for the Whitfield automatic tire inflator.

Claudius Ash, Sons & Co. (1905), Limited, paid on December 1 an *interim* dividend at the rate of 6 per cent. per year on the ordinary shares, for the half year ending June 30 last.

At the recent Olympia Automobile Show, in London, the number of Dunlop tires fitted to cars on exhibition was 1205, in a total of 2181 tires on all the cars.

Howison & Co., Limited, was registered in London, November 26, with £5,000 [=$24,332.50] capital, to acquire the business carried on by R. M. Howison, at 26, City road, E. C., as Howison & Co., dealers in tires and accessories and other rubber goods. Mr. Howison was in the American rubber trade some years ago, first in Boston and later at Hartford.

Universal Motor and Tyre Co., Limited, was registered in London November 26, with £5,000 [$24,332.50] capital, to carry on the business of tire making and repairing.

The Waverley Rubber Works Co., Limited, having a waterproofing factory at Murrayfield, Edinburgh, have decided to go into voluntary liquidation. The company began business as the Waverley Rubber Co., in 1889, being founded by Mr. J. G. Laird, who has been identified with the business to this time.

GERMANY.

A COMPANY has been registered at Hamburg under the style Prowodnik Import Gesellschaft m. b. H., to deal in the products of the Russian-French Rubber Works "Prowodnik," of Riga, Russia. The capital stated is 100,000 marks, and Hermann Carl Sörnsen is in control.

The betrothal is announced of Dr. Fredrich A. Traun, of Dr. Heinrich A. Traun u. Söhne, hard rubber manufacturers of Hamburg and Harburg, Germany, and Fräulein Friedel Preetorius, daughter of Kommerzienrats Wilhelm Preetorius and wife, of Mainz.

ITALY.

IN a reference to the Italian rubber factory of Pirelli & Co., at Milan, in THE INDIA RUBBER WORLD November 1, 1907 (page 38), Doctor Alberto Pirelli, a son of the founder and head of the business, was mentioned as taking active charge of his father's business. It should be added that another son, Piero Pirelli, is also a managing director of the company, the two jointly taking charge of its affairs.

RUSSIA.

THE net profit of the Russian-American India-Rubber Co., at St. Petersburg, for the business year 1906 is stated at 5,045,796 rubles [=$2,598,584.95], and a dividend of 26¼ per cent. has been declared.

The imports of raw india-rubber and gutta-percha in 1905 are stated at 358,000 poods [=12,928,096 pounds] and in 1906 at 462,000 poods [=16,683,744 pounds].

The Moscow factories of F. Reddaway & Co.—the parent house of which is at Manchester, England—employ close on to 1000 hands, chiefly on oil cloth, leather cloths, and "Camel's Hair" belting, but do not make any rubber goods, as does the factory in England. The Russian house has branches at St. Petersburg, Kieff, Saratof, Warsaw, and elsewhere, at each of which places the postal address is F. Reddaway & Co. Mr. Reddaway devotes a considerable part of his time to the conduct of his business in Russia.

HASKELL GOLF BALL IN ENGLAND.

IN the British house of lords, on November 9, arguments in the appeal by the plaintiffs in the case of the Haskell Golf Ball Co. v. Hutchinson, Main & Co., Limited, were heard. This was an action for infringement of patent, heard originally in the high court of justice, chancery division, in London, in May and June, 1905, when Mr. Justice Buckley rendered a decision adverse to the patent. An appeal was filed by the Haskell company, and in the court of appeal, on March 7, 1906, the full bench concurred in the finding of the lower court. The case was carried next to the house of lords, where a final decision was delivered on November 25, also adverse to the Haskell patent.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

BEFORE these lines are printed the financial atmosphere may have ceased to exert its baneful pressure upon business operations generally, but at the time of writing it is the main topic of conversation. Of course, raw rubber is not the only commodity that has experienced a rapid fall in price, but it is the one which has the best claims for notice here. Though a fall in values at this season was expected by the trade, nothing so sensational was looked for, and it is not surprising that those who have rubber still to be delivered at prices 1 or 2 shillings above the present market price are excessively chagrined at the turn affairs have taken. And during the last few weeks, when values have been declining day by day, the purchaser has found great difficulty in making up his mind what to do. Of course it is well known that it is the large stock of rubber at Liverpool kept there by the tightness of money in New York that is the main cause of the slump; if it was thought to be due to overproduction a slump would assuredly have set in with regard to rubber planting shares. With respect to the latter comparatively little change has taken place, not that anxiety has not manifested itself, but rather from inside advice to shareholders not to give way to panic and thus to initiate a disastrous fall in the value of shares. The rubber share market may be considered as marking time, there being very little business doing.

RAW RUBBER SITUATION.

As far as the rubber trade generally is concerned there would of course be nothing to regret if the fall in prices of the raw material were the only factor in the existing situation. This is not so, however, because it is evident that the recent boom in trade is waning. Perusal of the share lists of motor car and cycle companies shows that things are in anything but a good way, and things are somewhat *in extremis* in the shipbuilding trade on the North East coast. The bad weather of the past summer is held responsible for the large decline in the sale of motor tires compared with 1906, a decline which if it were brought home to them would assuredly surprise those who predicted a large yearly increase in the demand for rubber in this direction. With regard to the general question of increased demand, I certainly cannot see eye to eye with those who seem to think that the demand for rubber goods will show an indefinite expansion in rates to the fall in price which may be expected when all the plantations come into bearing. I see that a writer was quoted in the November issue of this journal as saying that in 1920 the yield of cultivated rubber would be about 75,000 tons, or more than the present total consumption. If no increase in the supply of wild rubber takes place this means that there will be 150,000 tons available per annum. The writer of the above forecast does not foresee any difficulty in disposing of this, but everybody will not share his optimism.

Apropos of this I see that at the most recent meeting of the Rubber Plantations Co., Limited, Mr. F. A. Covett gave it as his opinion that the planting business was being overdone, and that if more companies are brought out it will not only result in such low prices as will put wild rubber out of the market, but that it will also mean internecine competition between the various companies resulting in loss of money all round. This prophecy is by no means a wild one, though it may not prove palatable to the financial groups in London engaged in exploiting planting propositions. Mr. Govett, however, is by no means alone in his prognostication, and I have heard many shrewd business men say that the thing is being overdone. Of course no one foretells disaster in the immediate future; it is only its eventuality which is emphasized. Meanwhile there is cessation of activities among the would-be substitute manufacturers. I hear great things said of a new "synthetic rubber" shortly to come upon the market from London, and which costs 5*d.* per pound to make. Probably the term synthetic is wrongly used, but it is the fashion now to call substitutes by the higher sounding name.

To the best of my knowledge this branch is not carried on in any of our regular rubber works, but only in works which make such goods *inter alia* a specialty. Prominent among such firms are Delmas, of Leicester; William Mather & Co., Limited, of Manchester; and Edward Taylor, of Salford, Manchester. Earlier in the history of the rubber medicated plaster the fabric was sent together with certain of the materials, such as orris root, to the rubber factory, there to have the rubber mixture calendered on the fabric. This may be done to some extent at the present day, but the principal plaster factories now have their own rubber plant, the main point about this which invites notice being the change from the use of the calender to the spreading machine. The belladonna plaster, which may be taken as one of the most important, is made largely both with a rubber basis and a lead soap basis. Although the former is the more expensive, it has the advantage of greater adhesiveness and longevity when kept in stock. It is generally sold under a two years' guarantee, which is not possible in the case of the non-rubber plaster owing to liability to crack if stored for any length of time by the retailer. As mentioned in Mr. Pearson's book, the rubber medical plaster is manufactured in the United States. I have no information about the non-rubber plaster, but the fact that the latter is exported to a considerable extent from England to America, while very little of the former crosses the water, rather indicates that the non-rubber plaster is not manufactured to any extent. In this branch there is considerable variety in the textile fabric employed, some of the modern artificial leathers being also now in considerable favor.

THE MEDICAL PLASTER BUSINESS.

I FEEL constrained to voice a plaint made to me the other day which seems to constitute a hard case. This has reference to the solution made and sold for many years by firms who use only fine rubber, especially the trimmings of cut sheet goods. They are now continually getting complaints, not about the quality of the solution, but about its high price compared with what is quoted elsewhere. I suppose it is a fact that whereas in the old days fine rubber was generally used for solution making, this is now quite the exception, cheaper brands having been substituted for it. Another point is that, except in special cases, the solution is not sold as containing a definite percentage of rubber, under which circumstances it is an easy thing for individual makers to cut the price.

RUBBER SOLUTION.

FOR the first time in its nine years of life the accounts of this company have become public property. At the annual meeting recently held in London, Mr. Harvey du Cros, M. P., the chairman, gave figures showing an extraordinary prosperity, and it is not surprising that a report of the proceedings loomed large in the press. [Some details from the company's report appear in another part of this paper.] Nor is it surprising that the ordinary newspaper reader should draw the conclusion that the possession of a rubber works is equivalent to the possession of a high grade gold mine, but it need hardly be said in this journal that figures such as given out by the

THE DUNLOP RUBBER CO.

Dunlop company are by no means the rule in the rubber trade. What is known now as the Dunlop Rubber Co. is the factory and business of the late firm of Byrne Brothers, at Birmingham, acquired and extended by the Dunlop Pneumatic Tyre Co., Limited, some years ago. The main point of interest about it is that it has the same board of directors as the Pneumatic Tyre company, and that it has the business privilege of supplying all the tires sold by the latter company, or at any rate all those sold under the name of Dunlop tires. Of late years, owing to the lapse of the Dunlop patents, it has been the policy of the board to extend the manufactures, and they now cover a wide range both in mechanicals and waterproof clothing. It will be remembered that the Dunlop Tyre company reorganized its capital last year, but even with the improved prospects the shareholders are in a very different position from their brethren in the rubber company. The Dunlop Tyre shares, it may be mentioned, are quoted at the time of writing at 16 shillings for £1 shares. To refer to a technical point, there can be little doubt that the acquisition of the Doughty high temperature vulcanizing patents by the Dunlop Rubber company has proved a highly profitable move, the economy of the process giving its possessor a great advantage over competitors. This is, however, only with regard to cycle tire covers, the process, it is understood, not being applicable to rubber of the thickness necessitated in motor tires.

GOLF BALL LITIGATION.

Now that the House of Lords, the highest tribunal in the land, has given its decision against the validity of the Haskell ball patent, litigation now ceases. Naturally the great army of golfers see nothing to complain of in the way the case against Messrs. Hutchinson, Main & Co. has terminated, as the competition which must ensue between the various makers will of course be in their favor. With regard to the business of the future, it may be pointed out that although there is no patent generally as regards the use of rubber wound under tension, this does not apply to minor improvements. Several patents are now in existence involving details which the several makers claim as conferring advantages on their make compared with others. Thus the composition and physical characteristics of the solid core have been made a matter for close attention, Charles Macintosh & Co., Limited, among others, having patented a core of a special design. The best rubber cored balls still cost 2 shillings each, and those who want the best pay this price without demur, while other brands may be obtained as low as 1 shilling. A good many of the cheaper balls, it should be mentioned, are "re-made," it being a common thing for players to sell their worn balls to the professionals, who put on a new gutta-percha cover and resell at 1*s.* to 1*s.* 4*d.* each.

RUBBER HEELS IN ENGLAND.

AT the late International Shoe and Leather Fair, in London, rubber products were even more prominent than in former years at this important show. There were no less than 27 distinctively rubber exhibits, of which 21 were made by manufacturers of rubber heel pads. Almost without exception these displays embraced heels of the revolving type, though not confined to these alone. The popularity of the revolving rubber heel in Great Britain was dealt with at length in THE INDIA RUBBER WORLD May 1, 1904 (page 278), since which time the number of manufacturers has increased, there has been a constant addition to the patents in this field, and the volume of trade appears larger. The various exhibits also embraced rubber soles and other footwear accessories.

The India Rubber, Gutta-Percha and Telegraph Works Co., Limited, who had been making rubber heels for the trade for years, appeared as manufacturers of rubber heels under their own name, and made an extensive and varied exhibit.

Another concern, concerned hitherto with other lines of production, who appeared this season for the first time as heel makers, was Wallington, Weston & Co., the tire manufacturers of Frome.

The rubber exhibits were not confined to heels and soles, however. The North British Rubber Co., Limited, had a very complete display of rubber boots and shoes, and distributed as souvenirs miniature rubbers such as have been used as advertising novelties by some of the American manufacturers in this branch.

Asbest- und Gummiwerke Alfred Calmon, A.-G., of Hamburg, exhibited rubber boots and shoes, gymnasium shoes, and Chinese patterns.

Canada was represented by the British agency for the Maple Leaf Rubber Co., of Port Dalhousie, Ontario.

Several American brands of rubber footwear, including the "Boston" and "Candee," were exhibited by the United States Boot, Shoe and Rubber Co., of Goswell road, London.

The products of the Hood Rubber Co. (Boston) were shown by their European agents, C. W. Randall & Co., in London.

One American make of heels was exhibited—the "Penna" goods, marketed by Howison & Co., of London.

"AEROLITE" TENNIS SHOE.

A line of exhibits deserving special mention as novelties embraced pneumatic heels and soles. In this department was the display of "Aerolite," Limited, of Leicester. Their list included pneumatic tennis soles, of different patterns; pneumatic golf, hockey, and shooting soles; pneumatic full heels and tips; pneumatic revolving heels; and pneumatic soles and heels for light walking boots. The "Aerolite" goods have proved very popular among tennis players, golfers, and climbers. They are reported to have a good sale on the continent as well as in Britain. The illustration shows one of the patterns of the "Aerolite" tennis sole.

AMERICAN LEATHER GOODS AND THE FAIR.

Some English trade journals emphasize the absence of American exhibits of leather footwear at the Shoe and Leather Fair as indicating that there is less reason to fear an "American shoe invasion" than some writers would have the public think. Whether the measure of success of manufacturers in marketing their products in Great Britain had any influence in determining their attitude toward the Fair, it is impossible for us to say. Official figures, however, would indicate that, while the total exports of leather footwear from the United States are increasing—and the exports to Europe as a whole are growing—there is a decreasing demand for such goods in Great Britain. The figures here are for fiscal years ended June 30:

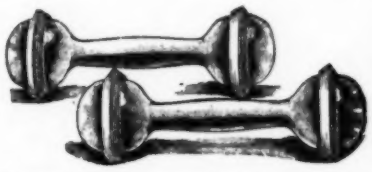
DESTINATION.	1901-02.	1902-03.	1903-04.	1904-05.	1905-06.
Total exports.	$6,182,098	$6,665,017	$7,238,940	$8,057,697	$9,142,748
To Europe ..	2,389,905	2,672,629	2,447,368	2,472,608	2,591,144
To England .	2,013,890	2,128,958	1,868,894	1,943,845	1,862,747

It will be seen that whereas Great Britain, five years ago, bought 32 per cent. of the American exports of leather footwear, the percentage was only 20 in the last year for which details are available. Meanwhile the sale of such goods is increasing in Germany. Like conditions apply to the American rubber footwear trade—an increase in the total, with a falling off in the British demand.

New Rubber Goods in the Market.

DUMB BELLS WITH RUBBER BANDS.

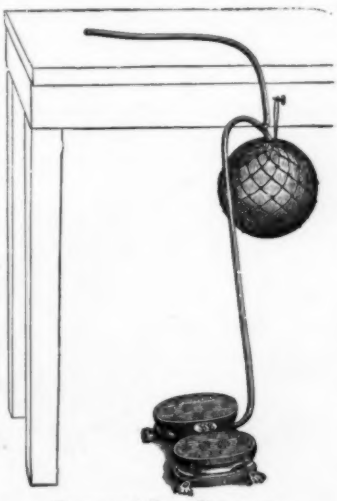
DUMB BELLS, in a great variety of sizes and kinds, are a part of the equipment of every public and private gymnasium, while many men and women who never enter a gymnasium swing the dumb bells every day as a desirable form of exercise. The small amount of space that a set requires makes it possible for the individual to have them in some convenient place when a more elaborate exercising apparatus would be out of the question. These shown in the illustration are especially practicable and easy to handle, while they are not without their decorative features. The rubber bands make them easy to keep in place and the sliding, which often makes them something of a care to set aside, is prevented by the application of these bands. Nickel plated sets come in one, two, three, four and five pound weight. [A. G. Spalding & Brothers, Nos. 124-128 Nassau street, New York.]



NICKEL PLATED DUMB BELLS WITH RUBBER BANDS.

DOUBLE ACTION FOOT BELLOWS.

THIS apparatus, for use in the dentist's operating room, is of English pattern, and consists of a double bellows, a rubber reservoir and the necessary tubing. The bellows is operated by an "easy, rocking motion" of the foot, one side being always in action; thereby a continuous flow of air is supplied, this being sufficiently powerful for any blowpipe used for dental purposes. The pressure is further equalized by the rubber reservoir, making the blast even and steady. A check valve in the outlet of the bellows prevents the air from being forced back through the bellows when the foot action is temporarily suspended. This makes it possible for the dentist to lay down the blowpipe momentarily, should his attention be diverted, and the work be resumed without loss of time that would be otherwise entailed. [The S. S White Dental Manufacturing Co., Philadelphia.]



DENTISTS' FOOT BELLOWS.

A PNEUMATIC HELMET.

TRACK cycle racing, paced by motor bicycles, which is still in vogue in various parts of Europe, ranks among the most dangerous sports of the day. This sport particularly is referred to as having been the cause of bringing into existence the pneumatic helmet, which consists of a leather cap shaped like a football, containing a rubber bladder. This is pumped up, and if the motor-cyclist is precipitated against a wall the rubber buffer saves his neck.

"GORDON" ADJUSTABLE DUST HOOD.

A DUST hood that has an extension over the back of the rear seat is one of the comforts now offered to autoists. This prevents the dust from coming up from behind into the car, so that the occupants of the rear seat are always free from dust when the dust hood is used. These hoods are marketed in four sizes. Each size is adjustable several inches, this adjustment being acquired by means of an elastic cord. The largest size fits tops from 75 to 78 inches across; the next size is for tops from 70 to 74; while the small touring car size fits tops from 64 to 68 inches. There is also a runabout size for tops from 54 to 58 inches. These tops are made in melodion cloth, artificial leather, and rubber. [Vehicle Apron and Hood Co., Columbus, Ohio.]

"GORDON" ADJUSTABLE DUST HOOD.

OLT'S "O. K." HARD RUBBER DUCK CALL.

THE principal thing to be considered when choosing a duck call is its naturalness. If its sounds will "bring them in," the game is as good as bagged. With the call here illustrated there is a patent tone slide whereby the tone can be changed at the will of the sportsmen to suit weather conditions, different kinds of ducks, and so on. Aside from the success that such a call is sure to be in attracting the game, there is something even more subtle in its hold upon the hunter—that of seeing the ducks assemble and watching them obey his will in the close imitation he is able to make to their own calls to their kind. This little call is made of hard rubber and is said that it will not swell, crack, or freeze shut in any kind of weather. It is convenient, too, because of the fact that its adaptability makes it unnecessary for the hunter to carry more than one kind of call. It is simply arranged, all that is necessary to do when wishing to change the call being to push the slide with the finger only a little either way, which will make the desired change. Should dirt or sand get into the call by pulling out the plug and lifting up the reed it may be blown out. [Philip S. Olt, Pekin, Ilinois.]

OLT'S "O. K." DUCK CALL.

IRWIN'S FOLDING BATH TUB.

THE illustration herewith shows how simple is the matter of a bath when a fixed bath tub is not available and one wishes something more than the ordinary sponge. This tub rests squarely on the floor, thus removing all danger of tipping. The frame is made of white ash, finished and varnished, and is bolted and hinged together without any separate parts. The length of the tub is 5 feet, inside, by 27 inches in width, and is 16 inches deep. These are about the dimensions of the ordinary fixed tubs. When folded these tubs are 5 feet long, and 5 inches square, and they weigh 16 pounds. The covering is of a single piece, in which

IRWIN'S FOLDING BATH TUB.

there are no cuts or seams, and is made of heavy, closely woven duck, rubber coated especially for these tubs. The material not being injured by salt, sulphur or medicated waters, it is possible to take a medicated bath; or, if looped up in the center, the tub serves as a sitz bath. The tub is emptied by simply taking hold of the rails and lifting at one end, the other end forming a trough by which the water is poured into a pail. [Russell M. Irwin, No. 103 Chambers street, New York.]

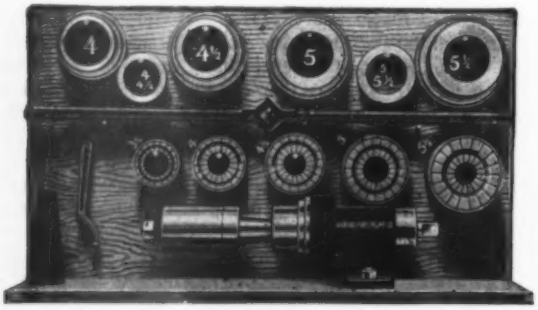
"BUBBLE-QUICK" HEATER.

THE "Hygeia" nursing bottle, for which this heater is especially designed, has already had a special holder patented for it, and now with the heater it would seem that the outfit is nigh completion. Some genius has computed the number of times the nursing bottle has to be heated the first year, and makes it 2,500. Any device which will lessen the labor and worry involved in this number of operations is naturally assured of a welcome. The construction of this heater demonstrates the principle of a large heating surface and a small quantity of water to heat. According to this principle there is but a thin sheet of water surrounding the bottle, and the water also fills the broad shallow base which has both upper and lower plates deeply corrugated. It can be used over an ordinary gas jet, giving the light at the same time, as well as over a gas stove. The time required for heating depends upon the temperature and amount of milk and the means of heating, varying from 60 to 90 seconds. [The Hygeia Nursing Bottle Co., Buffalo, New York.]

"BUBBLE-QUICK" HEATER.

"CONTINENTAL" HOSE EXPANDER.

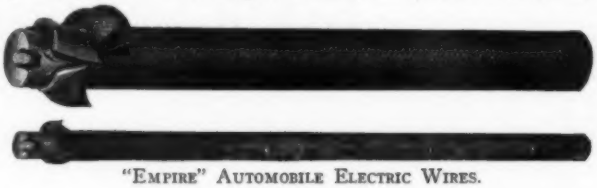
THE "Continental" Hose and Suction Expander, shown in the illustration, is a tool for attaching couplings to suctions and other large hose where inside diameters range from 3½ to 6 inches. This expander is supplied with an adjustable gauge and automatic release, the various segments are interchangeable and any one or more of the sizes within the range of the tool can be supplied at any time. It is compact and convenient, and has many advantages in its favor. [The Ahrens Fire Engine Co., Cincinnati.]



"CONTINENTAL" HOSE EXPANDER.

"EMPIRE" AUTOMOBILE ELECTRIC WIRES.

THE "Empire" secondary wire, for automobile use, is so constructed that it may be subject to much hard usage, not to say abuse, without making it unfit for service. The cable is covered with a rubber stock designed to resist high voltage, and this in turn is covered with a braid, outside of which is placed a rubber stock that is absolutely oilproof, and two braided jackets are placed over all. The "Empire" primary wire, which is also illustrated in the smaller cut, is insulated with oilproof rubber, and finished with two braided jackets. [Empire Automobile Tire Co., Trenton, New Jersey.]



"EMPIRE" AUTOMOBILE ELECTRIC WIRES.

"THE CORKER."

THE device here illustrated is simply a device formed of strong, fine, pure rubber, in the shape indicated by the darker portion of the cut. It slips on any bottle, over any cork, and is designed to keep medicines or the like from spilling, evaporating, or concentrating. Its use is better than tying pieces of paper or cloth over bottle corks when traveling, to prevent spilling the contents and spoiling everything in a grip or trunk. "The Corker" corks the bottle instantly and securely. It is sold very generally by druggists. [O. B. Schellberg, No. 217 East Twenty-seventh street, New York.]

"THE CORKER."

ADVERTISING ON THE ROADWAY.

THE illustration here does not relate to any particular kind of footwear, rubber or otherwise; it merely records the suggestion of some clever man in the advertising field of the possibility of utilizing shoe soles for a new purpose. Were the suggestion to be adopted generally, while every man might not leave behind him "footprints on the sands of time," he would leave somebody's advertisement every time he stepped upon a sanded or dusty roadway. In an early issue of THE INDIA RUBBER WORLD an illustration was copied from a contemporary pointing out how bicycle tires might be used for advertising purposes by means of raised letters on the tread. More recently a leading maker of bicycle tires in England began branding or lettering the tires on the tread, with the incidental idea of advertising them on the road surface wherever they ran. Whatever the advertising value of the idea, it was copied by other makers, with the result that the matter got into the courts of justice. The cut here presented is a feature of the advertising of Albert Theilgaard, of Copenhagen, in the reclaimed rubber trade, for calling attention, by name, to his brands.

WHY NOT RUBBER SOLES FOR ADVERTISING?

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED NOVEMBER 5, 1907.

NO. 869,890. Portable rotary bathing and massaging machine. C. F. Faupel, Chicago.

869,970. Rubber overshoe. H. C. Mason, Providence, R. I.

870,013. Vehicle tire. A. W. Butler, Brockton, Mass.

870,044. Belt and belting. D. Nettenstrom, assignor to United States Chemical Rubber Co., both of Chicago.

870,171. Spring cushioned automobile wheel [with rubber cushioning devices]. W. A. Hill, assignor of one-half to V. Scheidell and G. Meyers, all of Callicoon, N. Y.

870,248. Pneumatic tire [with removable flanges bolted to the wheel felloe]. H. A. Palmer, Akron, Ohio.

870,299. Tapping knife for rubber trees and the like. [Described in THE INDIA RUBBER WORLD, April 1, 1907—page 219.] C. A. Lesher, Soconusco, Mexico, assignor to La Zacualpa Rubber Plantation Co., San Francisco.

870,323. Elastic tire for vehicle wheels. G. E. N. I. E. Subra, Paris, France.

870,325. Pneumatic renovator [for carpets and the like]. J. S. Thurman, St. Louis.

870,349. Process of producing compounds containing rubber and fiber. F. M. Ekert, Akron, assignor to The Ekert Fiber Co., Cleveland, Ohio.

870,367. Glue. [In some forms may include rubber.] G. Kelly, Hinsdale, Ill.

870,395. Apparatus used for milking cows. W. J. Teese, Balaciava, Victoria, assignor to W. H. Blackham, Melbourne.

870,407. Fresh air conveyor [for sleeping rooms and the like]. K. Anthony, Wilmerding, assignor of one-half to A. L. Trevaskis, Turtle Creek, Pa.

Trade Marks.

26,463. The Hartford Rubber Works Co., Hartford, Conn. The words *No. 77.* For rubber tires.

27,786. American Lead Pencil Co., New York city. Cut of a pencil with eraser. For lead pencil holders.

29,534. Scandinavian Fur and Leather Co., New York city. The letters *S. F. L. C.* For rubber automobile apparel.

L. Candee & Co., New Haven, Conn. The following, for marking the kinds of goods specified:

30,007. The word *Federal.* For rubber footwear.

30,008. The word *"Candee."* For rubber footwear.

30,009. The word *Candee* in a circle. For rubber footwear.

Woonsocket Rubber Co., Woonsocket, R. I. The following, for marking the kinds of goods specified:

30,012. The word *Woonsocket* in a semicircle. For rubber footwear.

30,013. The words *Rhode Island Rubber Co.* in a circle, with the letters *U. S. A.* in the center. For rubber footwear.

30,014. The word *Atlas.* For rubber footwear.

Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn. The following, for marking the kinds of goods specified:

30,023. The word *Armor* in a semicircle. For rubber footwear.

30,024. The word *Acme.* For rubber footwear.

30,025. The word *Connecticut.* For rubber footwear.

30,019. National India Rubber Co., Bristol, R. I. The word *Colonial.* For rubber footwear.

30,167. Hood Rubber Co., Boston. The word *Tuesday.* For rubber tires and rubber footwear.

ISSUED NOVEMBER 12, 1907.

870,548. Tire shoe. G. Dentzeau, West New York, N. J.

870,656. Detachable tread for pneumatic tires. C. B. Woodworth, Newton, Mass.

870,657. Traction attachment for vehicle tires. *Same.*

870,763. Hose band. F. W. Chaffee, Albany, N. Y.

870,770. Rubber tip and means for securing it. [For furniture legs.] H. Fuller, Stockbridge, Ga.

870,785. Milking apparatus. M. E. Jacques, Buffalo, N. Y.

870,796. Tire protector. R. Parker, New York city.

870,804. Life saving suit. M. A. Tieck, Denver, Colo.

870,844. Armor for tires. G. Powell, Newark, N. J.

870,981. Vacuum cleaning system. F. J. Matchette and R. Raddatz, Milwaukee, Wis., Raddatz assignor to Matchette.

871,003. Hose nozzle. W. A. Teall, Eau Claire, Wis.

Trade Marks.

Bleistiftfabrik vormals Johann Faber, Actiengesellschaft, Nuremberg, Germany. The following, for marking the kinds of goods specified:

9,819. The words *Johann Faber,* preceded by crossed hammers. For pencils and erasers.

9,819. The word *"Adonis."* For pencils and erasers.

Morgan & Wright, Detroit, Mich. The following, for the kinds of goods specified:

29,397. The word *Cataplaro.* For rubber tires.

29,400. The picture of a seal in an oval with the word *White* above and the word *Seal* below. For rubber packing.

Hazen-Brown Co., Brockton, Mass. The following, for marking the kinds of goods specified:

29,959. The word *Foldite.* For rubber cements.

29,960. The word *Hazenite* below the word *Fold* and above the word *Holding.* For rubber cements.

31,307. The M. Lindsay Rubber Mfg. Co., New York and Washington. The words *Rubber Bubbles.* For toys.

30,398. George Borgfeldt & Co., New York city. The word *Wingfield,* over the representation of a winged ball. For tennis balls.

30,431. The B. F. Goodrich Co., Akron, Ohio. The word *Pinnacle.* For rubber belting.

ISSUED NOVEMBER 19, 1907.

871,159. Tire. [Cushion, in ring-like sections.] W. D. Baker, Brockton, Mass.

871,169. Pneumatic tire. F. C. Hood, Boston.

871,256. Hose nozzle. J. P. Buckley, Dayton, Ohio.

871,297. Vehicle wheel. N. Scheck, St. Louis.

871,404. Tire. [Pneumatic.] W. A. Heller, Akron, Ohio.

871,460. Rim for vehicle wheels. E. D. Valentine, Akron, Ohio.

871,481. Vehicle wheel. R. F. Corwin, Grand Rapids, Mich.

871,506. Resilient tire. I. W. Hodgson, Minneapolis, Minn., assignor of one-half to E. J. Hodgson, Minneapolis, and one-fourth to P. W. Herzog, St. Paul, Minn.

871,515. Vehicle wheel. W. G. Mullen, assignor of one-half to J. A. Henjum, both of Pomona, Cal.

871,575. Tire protector. W. T. Dorgan, Peoria, Ill., assignor to W. J. Wickes and A. D. Eddy, Saginaw, Mich.

871,579. Atomizer. W. J. English, Cohoes, N. Y.

871,760. Pneumatic knee pad. W. Long, assignor of one-half to J. C. Newby, both of Sheridan, Ind.

Trade Marks.

628. The B. F. Goodrich Co., Akron, Ohio. The letter *G* within a wreath. For a large variety of rubber goods.

27,209. Weed Chain Tire Grip Co., New York city. The representation of a pneumatic tired wheel chain grip. For a chain tire grip.

28,172. New York Belting and Packing Co., Ltd., New York city. The word *Karbonite.* For rubber belting.

29,536. Hood Rubber Co., Boston. The representation of a spinning top. For rubber footwear and rubber tires.

30,363. L. Candee & Co., New Haven, Conn. The word *Fairy.* For rubber footwear.

ISSUED NOVEMBER 26, 1907.

871,811. Pneumatic cushion. W. C. McCullough, Bucyrus, Ohio.

871,930. Patch for pneumatic tires. G. Hagstrom and E. Hagstrom, assignors to The Hagstrom Bros. Mfg. Co., all of Lindsborg, Kans.

871,945. Tire. [Solid.] R. M. Merriman, Youngstown, Ohio.

871,973. Multipart mold for pneumatic tires. F. Veith, Veithwerk, Germany.

872,001. Hose coupling. J. G. Massie, Belleville, Ill.

872,096. Means for preventing side slip in pneumatic tires. L. E. Trefflere and V. J. Jehin, Paris, France.

872,184. Door check or bumper. H. F. Keil, Bronxville, N. Y.

872,185. Door check or bumper. *Same.*

872,207. Tire channel cleaning device. W. C. Wegner, Laporte, Ind.

872,217. Syringe. [Vaginal.] A. E. Bonesteel, Denver, Colo.

872,246. Fastening device for pneumatic tire protectors. R. H. Morris and E. E. Townsend, Oakland, Cal.

872,295. Tire setting machine for rubber tires. J. L. Hixson and C. W. Powell, Ypsilanti, Mich.

872,311. Vehicle wheel. E. Sutherland, Hollywood, Cal.

Trade Marks.

28,173. New York Belting and Packing Co., Ltd., New York city. The word *Draphon.* For rubber packing.

30,402. George Borgfeldt & Co., New York city. The word *Coronet,* under the representation of a crown. For pencils and erasers.

ISSUED DECEMBER 3, 1907.

872,334. Air ship. A. S. Fadda and J. Di Lorenzo, Pittsburgh, Pa.

872,362. Pneumatic spring and shock absorber for motor vehicles. A. L. Muren, Belleville, Ill.

872,423. Chain pump bucket. F. G. Hodell, Cleveland, Ohio.

872,463. Hose coupling. B. A. Schwabe, Abrams, Wis.

872,472. Fastening for resilient tires. O. G. Stolz, Chicago.

872,526. Protected pneumatic tire. C. G. Lotave, assignor of one-half to E. R. Cooper, both of Denver, Colo.

872,645. Resilient tired wheel for self propelled vehicles. E. M. Carhart, Providence, R. I.

872,836. Vehicle wheel. T. J. Mell, Youngstown, Ohio, assignor to The Republic Rubber Co.

872,860. Vehicle tire. W. C. Taylor, Paris, France, assignor of one-half to C. G. Taylor, Washington, D. C.

Trade Marks.

29,405. The Elastro Mfg. Co., Hartford, Conn. The word *Elastro.* For a tire fluid.

29,924. The Joseph Banigan Rubber Co., Providence, R. I. The word *Woonasquatucket* in horseshoe shape. For rubber footwear.

29,926. *Same.* The representation of a lion. For rubber footwear.

29,927. Meyer Rubber Co., New Brunswick, N. J. The words *Meyer Rubber Company.* For rubber footwear.

29,929. American Rubber Co., Boston. The words *Para Rubber Shoe Co., Boston*, within an ornamental design. For rubber footwear.

29,930. *Same.* The words *American Rubber Co.*, on a shield. For rubber footwear.

29,938. Goodyear's India Rubber Glove Mfg. Co., Naugatuck, Conn. The words *Goodyear's I. Rubber* (on a representation of a glove) *G. New York*, all within a circle. For rubber footwear.

29,944. Boston Rubber Shoe Co., Boston. The words *Boston Rubber Shoe Co.* within a circle and the words *Boston, U. S. A.*, within an inner circle. For rubber footwear.

29,945. *Same.* The words *Bay State Rubber Company* within a circle, over the words *Boston, U. S. A.* For rubber footwear.

29,946. New Brunswick Rubber Co., New Brunswick, N. J. The words *New Brunswick Rubber Company.* For rubber footwear.

29,958. United States Rubber Co., New Brunswick, N. J. The words *New Jersey* within a scroll. For rubber footwear.

30,399. George Borgfeldt & Co., New York city. The word *Coronet* under the representation of a crown. For rubber balls and toys.

30,400. *Same.* The word *Coronet.* For rubber toilet articles.

30,401. *Same.* The word *Coronet* under the representation of a crown. For rubber surgical goods.

30,727. The Lycoming Rubber Co., Williamsport, Pa. The word *Lycoming.* For rubber footwear.

30,728. *Same.* The words *Keystone Rubber Co.* within the outline of a keystone, over the letters *U. S. A.* For rubber footwear.

30,729. *Same.* The words *Lycoming Rubber Co., Williamsport, Pa.*, within an oval, over the letters *U. S. A.*

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1906.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, OCTOBER 30, 1907.]

15,311 (1906). Vulcanizing the macerated wood of rubber or other gum-yielding plants. F. Ephraim, Torreon, Mexico.

*15,332 (1906). Spring wheel. W. H. Parham and F. E. Lack, Paducah, Ky.

15,401 (1906). Detachable antiskid. C. Joly, London.

*15,403 (1906) Pinch die for lettering golf balls. J. C. Cory, New York.

15,443 (1906). Tire tread with imbedded steel plates. A. B. Verrier, Swindon, Wilts.

15,487 (1906). Means for generating acetylene gas for inflating tires. R. Parsons, Stranooden, and T. Parsons, Westport, Ireland.

15,499 (1906). Tire repair vulcanizer, electric heated. L. Binko and Phoenix Electric Heating Co., London.

15,511 (1906). Puncture shield for tires. M. E. M. Reischer, London.

15,628 (1906). Pneumatic shoe tree. E. Lovell, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 6, 1907.]

15,772 (1906). Pneumatic shock absorber. W. H. Humphreys, Liverpool.

15,789 (1906). Spring wheel. O. J. Beugnot and O. Humbert, Paris, France.

15,830 (1906). Pneumatic hub. F. Walton, London.

15,883 (1906). Pneumatic buoy or life-saving float. E. S. Copeman, Suffolk.

15,897 (1906). Spring wheel. G. S. Ogilvie, Suffolk.

15,972 (1906). Non skid band for tires. J. A. Goffin, Suresnes, France.

15,991 (1906). Antiskid device, being spade like projections mounted on the wheel rim. W. Lowry, Belfast, Ireland.

16,024 (1906). Pneumatic vehicle suspension. C. F. Readman and J. Lingard, Hanley, and T. Unwin, Stoke-on-Trent.

16,030 (1906). Mold for tires. W. H. Cox, Eccles.

16,050 (1906). Rubber cored golf ball. C. Porter, London.

16,084 (1906). Crude sheet rubber, compounded for slow or rapid curing, for tire repair. W. R. Ormandy, Warrington.

16,110 (1906). Spring wheel. R. C. Parsons, London.

16,130 (1906). Link belt antiskid. A. H. Duncuff, Birmingham.

*16,210 (1906). Multiple or diaphragm tube for tires. F. A. Magowan, New York city.

16,241 (1906). Solid rubber tire, with fastening plate imbedded in base. W. Struck, Berlin, Germany.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 13, 1907.]

16,337 (1906). Removable rim, wedge fastening. T. Sloper, Devizes.

16,368 (1906). Corn oil rubber substitute. F. Fenton, Mitcham.

16,519 (1906). Rubber sub., made of casein, gelatine, etc. A. Litzler, Mulhausen, Alsace.

16,593 (1906). Spring tire, the sections mounted upon elastic levers, tangential to rim. R. Varty, Bedford, and F. L. Vart, Royston.

16,620 (1906). Tire shoe, made wholly of flat links and hooks. G. Magaldi, Buccino, Italy.

16,730 (1906). Rubber coat, with divided skirts. A. A. Holdsworth, Hawksburn, Victoria.

16,787 (1906). Pneumatic shoe tree. G. F. Johnson, Northampton.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 20, 1907.]

16,832 (1906). Spring wheel. J. Pounds, Melbourne, and H. H. Pounds, St. Kilda, Victoria.

16,868 (1906). Spring block tire. E. Rodriguez, London.

16,966 (1906). Detachable heel fastening. W. Barber, London, and S. Fletcher, Sutton.

17,101 (1906). Pneumatic hub. R. L. Holt, Southport.

17,107 (1906). Goggles made wholly of rubber and glass. J. Byron, Liverpool.

17,251 (1906). Lubricating packing, made of rubber, fabric and graphite. J. Walker, London.

17,277 (1906). Solid tire bearing on pneumatic in deep channel. R. Bancroft, Manchester.

17,350 (1906). Waterproof coat, with detachable sleeves. H. Broughton, Rochdale.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 27, 1907.]

17,438 (1906). Solid rubber tire, being sheet rubber wrapped around a core. A. W. Carpenter, London.

17,465 (1906). A diaphragm tube, one being inflated automatically, when the other is deflated. E. H. Gymnich and H. Menz, Breslau, Germany.

17,501 (1906). Flat link antiskid. J. Eastwood, Leeds.

17,529 (1906). Cushion tire. T. Oldfield and J. A. Schofield, Halifax.

17,648 (1906). Sectional cushion tire. G. B. M. Spigno, Genoa, Italy.

17,700 (1906). Detachable antiskid tread. E. Siegenthaler, New Malden.

17,773 (1906). Rubber substitute, made from turpentine oil. E. A. L. Rouxeville, Paris, France.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

376,507 (Apr. 6, 1907). A. Manson. Fastening pneumatic tires.

376,508 (Apr. 6). R. Neufild. Elastic tire.

376,258 (Apr. 8). L. Babert. Antiskid tire.

376,530 (Apr. 8). A. Rickli. Removable rim.

376,490 (Apr. 6). Römer et von Lorn. Rubber machinery.

376,593 (Apr. 11). A. Beaujon. Tire tread.

376,707 (Apr. 6). V. Purrey. Tire and rim.

376,739 (Apr. 13). Société Panhard et Levassor. Removable rim.

376,805 (Apr. 16). H. W. Dover. Pneumatic tire.

376,820 (Apr. 17). H. Claudy. Elastic tire.

376,858 (June 23, 1906). R. Desouches. Cushion tire.

376,908 (Apr. 19, 1907). C. Fourmon. Elastic tire.

376,913 (Apr. 19). Société Continental et Gutta Percha. Removable rim.

377,055 (Apr. 22). N. Cugler. Wire mesh pneumatic tire.

377,202 (Apr. 26). Marchant. Elastic tire.

377,272 (Apr. 29). J. P. LeGrand. Pneumatic tire.

377,306 (May 1). M. Dondin. Pneumatic wheel.

377,352 (May 2). S. Touzelet. Spring wheel.

377,356 (May 2). Société Michelin et Cie. Pneumatic tire.

377,370 (May 3). W. Weidling. Automobile tire.

377,428 (March 30). E. B. Killen. Rubber tire.

377,611 (May 8). E. L. Carbone. Elastic tire.

377,462 (Apr. 29). P. Hampel. Rubber bust form for women.

377,526 (May 6). D. Landmann. Process for extracting rubber, gutta, and balata.

377,642 (March 18). Société Marvel Rubber Co. Rubber footwear.

377,644 (March 29). J. Cairns. Pneumatic heel.

377,707 (May 11). Vereinigte Berlin-Frankfurter Gummiwaren-Fabriken. Antiskid.

377,748 (May 13). H. J. Bastide. Cellular pneumatic tire.

377,807 (May 14). J. A. Swinehart. Twin tire.

377,857 (May 16). A. Hubaut. Punctureproof tire.

377,899 (March 4). A. Cuinet & A. Cuinet. Antiskid.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

RUBBING IN RUBBER CEMENT.

THE result of the observations of a writer in *Shoe and Leather Reporter* has been that wherever rubber cement is used, the greatest difficulty usually lies in not satisfactorily working the cement into the leather. He says that this should invariably be well done to secure the best results from any cement. If one examines a piece of bottom stock which has been fitted under the microscope, there will be seen a great forest of fuzzy fibers sticking up from the solid bed of the channel which have been ripened up by the channel knife. Cement applied to the tops of these fibers, and not rubbed into the roots of them, cannot hold very firmly. While a much poorer grade of cement well worked in will ordinarily satisfactorily take the place of a much better grade which is merely applied to the upper surface. Because of this, rotary brush cementing machines usually do much more satisfactory work than any hand cementer can do, and when such a machine is used, great care should be taken that the work is held up firmly to the brush.

RUBBER PLANTING COMPANIES.

THE London Asiatic Rubber and Produce Co., registered in London, October 26, with a capital stated of £140,000 [=$681,310], has for its purpose the acquisition, as a going concern, of the Asiatic Rubber Produce Co., Limited, formed in Ceylon in 1905, with an issue of capital to date of £76,666 13*s.* 4*d.* The estates acquired are in Malacca and Selangor, and embrace 4190 acres planted to rubber. The number of rubber trees is reported at about 650,000, of which 14,600 will be tappable this year, and an increasingly large number each year thereafter. The members of the board are also directors in other important rubber planting enterprises.

At the meeting to complete the organization of the Sumatra-Deli Rubber Estates, Limited (London, November 12), it was stated that the transfer of the property was complete and that two shipments of rubber, amounting to about 4000 pounds, had been received in London

The Sambas Rubber and Gutta Percha Co., Limited, whose estates are in Borneo, are reported to have ordered 300,000 Pará rubber seeds and 15,000 18 month old plants.

The average price obtained in London for Kepitigalla estates rubber during the business year ended March 31 last was 5*s.* 5¾*d.* [=$1.33⅓] per pound. The directors think that the greater yield per tree this year will offset the reduction that has occurred in the price of rubber.

The first report of Kuala Lumpur Rubber Co., Limited, covers fifteen months, up to June 30, 1907. The rubber product sold—mainly within the last twelve months of this period—amounted to 31,902 pounds, from 14,501 trees, and realized 5*s.* 2 2-5*d.* [=$1.30 2-3] per pound, after deducting sale charges. The profit for fifteen months was £7612, of which £7503 was earned in the last twelve. No dividend was expected, but the directors voted to disburse 3 per cent.

SAO PAULO (BRAZIL).

THE department of agriculture of the Brazilian state of Sao Paulo during the first six months of 1907 distributed among planters 124,000 seeds of the Bahia rubber tree known as "Maniçoba de Jequié." This important rubber species has been referred to in THE INDIA RUBBER WORLD October 1, 1907 (page 9), and November 1, 1907 (page 55). It has been described as *Manihot caricæfolia*, the "maniçoba" of Ceará being known botanically as *Manihot Glaziovii*.

PROGRESS IN GUATEMALA.

MR. LEO F. NADEAU, the Guatemalan consul at Providence, Rhode Island, has been furnished with details of the formal celebration of the Northern Railroad of Guatemala, to take place in this month. The new railway from Puerto Barrios to Guatemala city, the national capital, a distance of about 200 miles, will be of great commercial importance to the republic, opening as it does for the first time a very large region to the Atlantic seaboard. The project has been almost wholly financed with American capital, backed by a government concession and guarantee. President Cabrera, in connection with the opening, has designated two weeks as a national holiday. Mr. Nadeau, who is interested largely in rubber planting and grazing in Guatemala, is extremely sanguine as to the future of the republic.

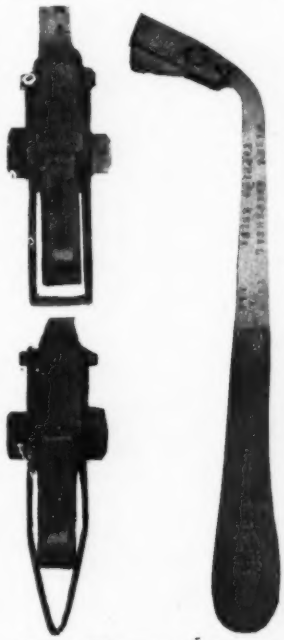
"RUBBER SHARE HANDBOOK."

THIS is a compilation of details of companies owning rubber properties in the Far East, South America, and Africa, issued by *The Financier and Bullionist*, an important London financial daily. It does not purport to be a complete list, but to deal with a sufficient number of companies to enable the average investor to form a just and accurate opinion of rubber shares as a basis for investment. The information appears accurate in every way, and is brought down to a later date than in any other reference book. There are several chapters of informing comment by way of introduction. The price is 1 shilling.

Gow, Wilson & Stanton, Limited, of London, under an arrangement with *The Financier*, have brought out a special edition of the "Rubber Share Handbook," with additional introductory matter prepared by themselves.

TWO NEW TAPPING TOOLS.

THE "Universal" rubber tapping knife patented by George W. Pask, of the Kepitigalla rubber estate, in Ceylon, has resulted from the efforts of the inventor to devise one tool that will do all the work in tapping. It is referred to as cutting all styles of tapping—herring bone, half herring bone, spiral, or "V." It will make the first channels vertically and afterward take off a fixed width or depth of bark as required, cutting either upward or downward, or to the left or right, and without clogging. It is designed especially to prevent cutting too wide or deep, or injuring the cambium. The larger of the illustrations shows the knife complete, with the handle. One of the smaller pictures gives a view of the cutter blade, which is square shaped. "V" shaped cutters are supplied, when preferred, as shown in the other small picture.



PASK'S "UNIVERSAL" RUBBER TAPPING KNIFE.

[The small cuts are two-thirds the full size of the cutter blades.]

* * *

THE "Alpha" rubber tapping knife, shown in the next illustration, has been tested more thoroughly on planted *Castilloa* trees, though designed for use also on *Hevea* rubber. The double handle is referred to as allowing the operator to keep the knife steady, thus making a straight cut. The curved blade cuts the groove and the straight, following blade skins off the bottom side, exposing to the fullest the cells and allowing the greatest amount of latex to flow into the channel. The blades may be renewed when worn out. This tool has been introduced by Mr. Leslie Radclyffe, 35, Queen Victoria street, E. C., London.

THE "ALPHA" TAPPING KNIFE.

Official India-Rubber Statistics.

For the United States Fiscal Year Ended June 30, 1907.

INDIA-RUBBER.

I.—Imports of Crude India-Rubber, by Countries.

FROM—	Pounds.	Value.
Europe:		
Belgium	4,056,551	$3,710,539
France	2,058,837	1,788,768
Germany	4,730,257	3,464,854
Netherlands	206,787	197,262
Portugal	3,059,151	2,231,524
United Kingdom	9,896,051	8,440,716
Total	24,007,634	$19,833,660
North America:		
British Honduras	24,901	$19,596
Canada	2,816	1,873
Costa Rica	130,650	80,869
Guatemala	35,152	20,231
Honduras	104,334	76,444
Nicaragua	661,327	441,151
Panama	212,003	146,968
Salvador	25,882	14,314
Mexico	7,175,097	2,877,022
British West Indies	9,038	6,426
Total	8,381,200	$3,684,894
South America:		
Brazil	40,286,751	$32,943,792
Colombia	738,208	393,810
Ecuador	941,274	652,242
British Guiana	1,216	595
Dutch Guiana	550	250
Peru	165,346	147,816
Venezuela	190,368	154,064
Total	42,323,713	$34,292,569
Asia:		
British India	51,651	$44,248
Straits Settlements	1,926,346	767,763
Other British East Indies	236,658	271,795
Dutch East Indies	19,999	17,432
Total	2,234,654	$1,101,238
Africa:		
Madagascar	16,637	$7,620
Total	16,637	$7,620
GRAND TOTAL	76,963,838	$58,919,981
Total, 1905-06	57,844,345	$45,114,450
Total, 1904-05	67,234,256	49,878,366
Total, 1903-04	59,015,551	40,444,250
Total, 1902-03	55,010,571	30,436,710

II.—Imports of Crude India-Rubber, by Customs Districts.

AT—	Pounds.	Value.
Baltimore, Md.	243,165	$166,310
Boston and Charlestown	1,120,732	776,369
New York, N. Y.	72,030,464	56,454,631
Philadelphia, Pa.	271,777	188,133
Galveston, Tex.	1,215	625
Mobile, Ala.	35,197	25,692
New Orleans, La.	401,231	260,162
Corpus Christi, Tex.	2,122	1,193
Paso del Norte, Tex.	3,379	1,404
Saluria, Tex.	2,812,325	1,010,655
San Francisco, Cal.	24,776	18,640
Chicago, Ill.	5,619	4,436
Vermont, Vt.	2,816	1,873
Pittsburg, Pa.	9,020	9,818
Total	76,963,838	$58,919,981

III.—Imports of Manufactures of India-Rubber, by Customs Districts.

AT—	Value.
Baltimore, Md.	$44,672
Boston and Charlestown	100,931
Fall River, Mass.	7,670
Newport News, Va.	1,220
New York, N. Y.	1,965,031
Philadelphia, Pa.	23,743
Porto Rico	2,681
New Orleans, La.	3,931
Tampa, Fla.	1,456
Hawaii	1,640
San Francisco, Cal.	13,868
Buffalo Creek, N. Y.	44,399
Chicago, Ill.	28,161
Cuyahoga, Ohio	1,991
Detroit, Mich.	2,847
Genesee, N. Y.	1,101
Milwaukee, Wis.	2,102
St. Louis, Mo.	3,792
Cincinnati, Ohio	1,496
Kansas City, Mo.	1,299
Other ports	8,802
Total	$2,262,783

IV.—Imports of Manufactures of India-Rubber, by Countries.

[+ Indicates Increase; — indicates Decrease, compared with preceding year.]

FROM—	Value.
Austria-Hungary	$62,878+
Belgium	69,287+
Denmark	3—
France	825,399+
Germany	1,028,746+
Greece	187—
Italy	26,626+
Netherlands	1,590—
Norway	77+
Russia in Europe	21,361—
Spain	569+
Sweden	1+
Switzerland	1,687—
United Kingdom	193,468+
Bermuda	3+
Canada	27,970—
Mexico	136+
Cuba	555+
Colombia	10—
China	75+
Hongkong	346—
Japan	1,652+
Australia	157+
Total, 1906-07	$2,262,783+
Total, 1905-06	$1,992,413
Total, 1904-05	1,389,064
Total, 1903-04	821,526

V.—Exports of Manufactures of India-Rubber (and Gutta-Percha), by Customs Districts.

FROM—	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.
Bangor, Me.	$3,002	$346	$1,291
Boston, Charlest'n	15,774	417,041	536,328
New York	772,784	722,400	1,927,239
Pas'm'quaddy, Me.	3,105	114	4,318
Philadelphia	20,731	32	23,399
New Orleans	12,282	629	1,690
Arizona	69,547	1,108	4,156
Brazos de Santiago	.....	.....	122,192
Corpus Christi	38,534	1,064	42,995
Paso del Norte	57,795	92	11,416
Saluria	5,893	23,482	284
Oregon	22,940	15,520	33,662
Puget Sound	1,109	120	177
San Diego	113,662	20,594	205,224
Buffalo Creek	.....	.....	227,479
Champlain	9,183	40	116,002
Detroit	22,340	1,113	29,273
Duluth	283	.....	1,267
Minnesota	363	452	22,538
Huron	2,081	.....	23,783
Memphremagog	19,347	9,331	92,270
Niagara	29,473	550	125,147
N. and S. Dakota	14,687	41	32,621
Oswegatchie	5,934	65	64,313
Superior	2,405	.....	.....
Vermont	7,261	16,618	77,984
Other ports	2,106	351	1,866
Total	$1,253,369	$1,231,898	$3,729,643

GUTTA-PERCHA.

Imports of Crude Gutta-Percha, by Countries.

FROM—	Pounds.	Value.
Germany	169,059	$69,315
Netherlands	724	30
United Kingdom	58,576	38,465
British Honduras	2,632	2,003
Canada	4,510	3,408
Panama	2,266	748
Mexico	234	56
Colombia	12,832	3,445
Ecuador	71,694	51,716
Straits Settlements	224,363	32,153
Total, 1906-07	546,890	$201,339
Total, 1905-06	500,770	$188,161
Total, 1904-05	665,217	210,188
Total, 1903-04	424,617	174,953

GUTTA-JELUTONG (PONTIANAK).		
United Kingdom	395	$15
France	539	58
Netherlands	112,274	5,908
Germany	9,464	473
Straits Settlements	27,598,931	1,054,533
Dutch East Indies	716,057	24,111
Total, 1906-07	28,437,660	$1,085,098
Total, 1905-06	21,390,116	$733,074
Total, 1904-05	19,104,911	641,319
Total, 1903-04	14,887,416	430,231
Total, 1902-03	13,984,817	345,431

[NOTE.—The imports of Gutta-percha credited to South America are undoubtedly Balata.]

RECLAIMED RUBBER.

Quantity and Value of Imports, by Countries.

To—	Pounds.	Value.
France	244,196	$32,353
Germany	120,516	21,279
Italy	128,608	14,512
Netherlands	88,063	17,610
Norway	12,313	1,557
United Kingdom	1,585,471	228,382
Canada	2,360,868	347,401
Japan	10,753	2,015
Total, 1906-07	4,550,788	$665,109
Total, 1905-06	4,084,696	$511,843
Total, 1904-05	a	522,902
Total, 1903-04	a	178,335
Total, 1902-03	a	93,265

SCRAP RUBBER.

Quantity and Value of Exports, by Countries.

To—	Pounds.	Value.
Belgium	39,396	$4,316
Denmark	2,673	75
France	329,827	34,890
Germany	396,368	37,270
Italy	56,889	5,693
Netherlands	144,898	12,055
Sweden	80,214	8,261
United Kingdom	2,573,324	337,454
Canada	1,132,032	108,531
Australia	1,000	150
Total, 1906-07	4,756,621	$548,695
Total, 1905-06	a	$339,507
Total, 1904-05	a	204,945
Total, 1903-04	a	534,500
Total, 1902-03	a	404,586

a—Not officially reported.

Quantity and Value of Imports, by Countries.

From—	Pounds.	Value.
Austria-Hungary	102,818	$3,020
Belgium	266,175	21,431
Denmark	355,762	30,487
France	1,675,836	163,334
Germany	7,402,928	624,361
Greece	2,541	178
Italy	300	27
Netherlands	310,594	26,488
Norway	490,012	44,305
Roumania	15,576	1,134
Russia in Europe	7,766,304	678,462
Sweden	667,544	54,589
Switzerland	42,503	4,628
Turkey in Europe	610,757	51,938
United Kingdom	5,250,490	541,961
Bermuda	15,031	766
Canada	3,873,218	330,123
Newfoundland, Labrador	39,237	3,192
Mexico	20,631	1,832
Miquelon, Langley	506	20
British West Indies	79,889	3,555
Cuba	136,931	10,719
China	14,507	537
Straits Settlements	162,600	10,032
Turkey in Asia	11,620	1,042
Australia	20,883	826
Total, 1906-07	29,335,193	$2,608,987
Total, 1905-06	24,756,486	$1,721,678
Total, 1904-05	15,575,214	953,439
Total, 1903-04	20,270,970	1,164,785
Total, 1902-03	24,659,394	1,516,137

EXPORTS OF AMERICAN RUBBER GOODS, FISCAL YEAR ENDED JUNE 30, 1907.

EXPORTED TO—	Belting, Packing, and Hose.	Boots and Shoes. Pairs.	Boots and Shoes. Value.	Other Goods Value.	Total Value.
EUROPE:					
Austria-Hungary	$ 1,975	45,057	$ 23,499	$ 13,093	$ 38,567
Azores, Madeira Islands	....	446	604	412	1,016
Belgium	7,170	164,861	72,388	49,796	129,354
Denmark	6,191	29,820	14,143	9,394	29,728
France	18,968	116,057	53,676	40,093	112,737
Germany	39,601	262,661	123,468	312,409	475,478
Gibraltar	....	288	393	....	393
Italy	598	100,930	49,203	95,930	145,731
Netherlands	4,062	806	419	96,715	101,196
Norway	1,116	29,682	13,960	2,166	17,242
Portugal	....	294	220	554	774
Roumania	....	1,329	926	....	926
Russia in Europe	618	1,554	782	10,855	12,255
Spain	961	6,984	3,689	1,643	6,293
Sweden	1,677	134,917	69,057	19,905	90,639
Switzerland	1,894	55,204	25,382	7,754	35,030
Turkey in Europe	2,500	227,568	111,632	177	114,309
United Kingdom	107,731	627,888	320,295	1,216,490	1,644,516
Total, Europe	$195,062	1,807,346	$883,736	$1,877,386	$2,956,184
NORTH AMERICA:					
Bermuda	$ 327	273	$ 130	$ 1,956	$ 2,413
British Honduras	829	4	14	101	944
Canada	152,816	79,276	75,279	818,564	1,046,659
Newfoundland, Labrador	7,274	26,616	18,610	2,762	28,646
Costa Rica	9,633	151	74	3,822	13,529
Guatemala	4,737	216	129	1,099	5,965
Honduras	2,999	86	147	222	3,368
Nicaragua	4,748	48	106	1,551	6,405
Panama	67,172	1,330	1,037	16,760	84,969
Salvador	3,745	4	29	2,530	6,304
Mexico	292,784	5,028	3,809	260,208	556,801
Miquelon, Langley	....	362	566	20	586
West Indies—British	5,975	426	254	11,074	17,303
Cuba	84,694	7,862	7,321	191,909	283,924
Danish	616	88	69	375	1,060
Dutch	274	66	33	599	906
Haiti	1,251	228	196	807	2,254
Santo Dom.	4,599	366	264	3,356	8,219
Total, North America	$644,473	122,430	$108,067	$1,317,715	$2,070,255
SOUTH AMERICA:					
Argentina	$ 39,423	26,723	$ 14,632	$ 17,387	$ 71,442
Bolivia	167	....	....	100	267
Brazil	15,221	22,966	12,983	27,808	56,012
Chile	17,809	6,852	7,319	25,064	50,192
Colombia	5,007	715	424	8,385	13,816
Ecuador	5,172	1,858	800	2,015	7,987
Guiana—Dutch	1,322	2,101	1,029	2,391	4,742
French	29	46	23	607	659
Peru	10,573	1,986	2,648	7,688	20,909
Uruguay	183	10,960	6,611	8,822	15,616
Venezuela	3,469	24	12	6,709	10,190
Total, South America	$98,375	74,231	$46,481	$106,976	$251,832
ASIA:					
Chinese Empire	$ 14,297	3,859	$ 4,414	$ 18,051	$ 36,762
East Indies—British	10,798	1,281	613	10,866	22,277
Straits S.	1,602	220	112	692	2,406
Dutch	431	....	....	845	1,276
Hongkong	2,700	18,507	7,562	3,665	13,927
Japan	29,736	72,445	44,266	194,514	268,516
Korea	2,514	166	302	466	3,282
Russia, Asiatic	....	3	15	1,319	1,334
Siam	410	....	....	27	437
Turkey in Asia	28	16,431	8,746	314	9,088
Total, Asia	$62,516	112,912	$66,030	$230,872	$359,418
OCEANIA:					
Australia and Tasmania	$113,922	140,053	$ 75,714	$105,673	$295,309
New Zealand	11,665	31,276	23,281	35,581	70,507
French Oceania	691	881	695	213	1,599
German Oceania	....	....	....	64	64
Philippine Islands	16,177	12,746	18,913	32,889	67,979
Total, Oceania	$142,455	184,956	$118,603	$174,420	$435,478
AFRICA:					
British Africa—West	$ 3,697	36	$ 40	$ 104	$ 3,841
South	59,921	8,509	8,941	11,454	80,316
Canary Islands	....	....	....	125	125
Liberia	....	....	....	30	30
Portuguese Africa	45,161	....	....	9,263	54,424
Turkey in Africa—Egypt	1,709	....	....	1,163	2,872
Total, Africa	$110,488	8,545	$ 8,981	$ 22,274	$141,743
GRAND TOTAL	$1,253,369	2,310,420	$1,231,898	$3,729,643	$6,214,910
Grand Total, 1905-06	$1,221,159	2,693,690	$1,505,082	$2,966,144	$5,692,385
Grand Total, 1904-05	994,100	2,390,539	1,214,342	2,572,375	4,780,817
Grand Total, 1903-04	880,010	2,310,808	1,086,364	2,469,750	4,436,124
Grand Total, 1902-03	819,985	2,307,401	1,056,491	2,299,875	4,176,351
Grand Total, 1901-02	634,146	2,594,708	1,046,315	1,781,941	3,462,402
Grand Total, 1900-01	565,726	1,459,100	724,015	1,727,527	3,017,268
Grand Total, 1899-00	541,830	767,104	420,746	1,405,212	2,367,788

RUBBER TRADE IN CANADA.

CANADIAN imports of india-rubber manufactures for the fiscal year ended June 30, 1907, are officially stated to have been in value as follows:

	United States.	Great Britain.	Other Countries.	Total Value.	Duties Collected.
Boots and shoes	$63,702	$82	$125	$63,909	$22,403
Belting	25,035	3,465	...	28,500	7,218
Clothing and waterproof cloth	11,201	18,072	...	29,273	8,298
Hose	28,570	3,840	81	32,491	10,771
Packing and mats	59,867	833	178	66,878	21,142
All other	262,564	60,707	30,689	353,960	88,413
Total	$450,939	$86,999	$31,073	$569,011	$158,245
Total, 1905-06	680,014	99,695	32,034	811,743	100,879
Total, 1904-05	634,422	164,996	26,071	825,390	213,607
Total, 1903-04	617,471	334,646	26,098	978,215	256,210
Total, 1902-03	573,421	446,811	25,579	1,045,811	253,873

The only country showing a gain in the above trade is Germany, whose share advanced from $21,716 to $22,646.

There may also be noted the following imports, not classified by the customs as "rubber goods," but having a relation to the industry:

	United States.	Great Britain.	Other Countries.	Total Value.	Duties Collected.
Webbing, elastic and non elastic	$118,547	$55,249	$5,476	$179,272	$32,185
Stockinettes for rubber footwear	49,357	2,625	....	51,982	7,666
Duck for rubber belting and hose	54,276	4,090	....	58,366	free
Rubber thread	899	....	....	899	free

EXPORTS OF CANADIAN RUBBER GOODS.

To—	Value.	To—	Value.
Great Britain	$29,525	China	$1,308
Australia	34,558	Japan	58
Newfoundland	13,787	United States	17,591
New Zealand	48,210		
Other British	998	Total	$148,027
Europe	1,752	Total, 1906	266,504
South America	240	Total, 1905	170,359

IMPORTS OF RAW MATERIALS.

	Pounds.	Value.
Gutta-percha	11	$17
India-rubber	2,002,075	1,898,633
Rubber recovered; rubber substitute; hard rubber in sheets	2,551,476	460,767
Rubber powdered and rubber waste	917,555	86,955
Total, 1906-07	5,471,117	$2,446,372
Total, 1905-06	5,961,041	2,755,350
Total, 1904-05	5,474,911	2,723,273

RUBBER IN THE AUSTRALIAN TARIFF.

THE new tariff introduced by the federal treasurer of the commonwealth of Australia on August 8, 1907, going into effect on that date, is yet to be considered by the commonwealth parliament, and may undergo some changes, though probably none of importance. The details in the tariff schedule relating to manufactures of india-rubber are compiled below. The first column gives the old rate of duty; the second column the new rate for general imports; and the third column the preferential, lower, rate on British made goods—all the duties being *ad valorem*.

	Old rate.	New, General.	British. Special.
Rubber boots and shoes	25%	25%	20%
Rubber sand shoes	20%	25%	20%
Wading boots	free	5%	free
Rubber hose	15%	25%	20%
Invalid beds	free	25%	20%
Other rubber goods	15%	25%	20%
Rubber syringes and like goods	free	free	free
Thread and hard rubber sheets	free	free	free
Reclaimed rubber	15%	25%	20%
Printers' blankets	15%	free	free

The main object of the new tariff appears not so much to give preference to British goods as to protect local industries. It is true that a preference is given to the mother country, but at the same time there has been a general increase of duties.

THE BARNUM RESPIRATOR.

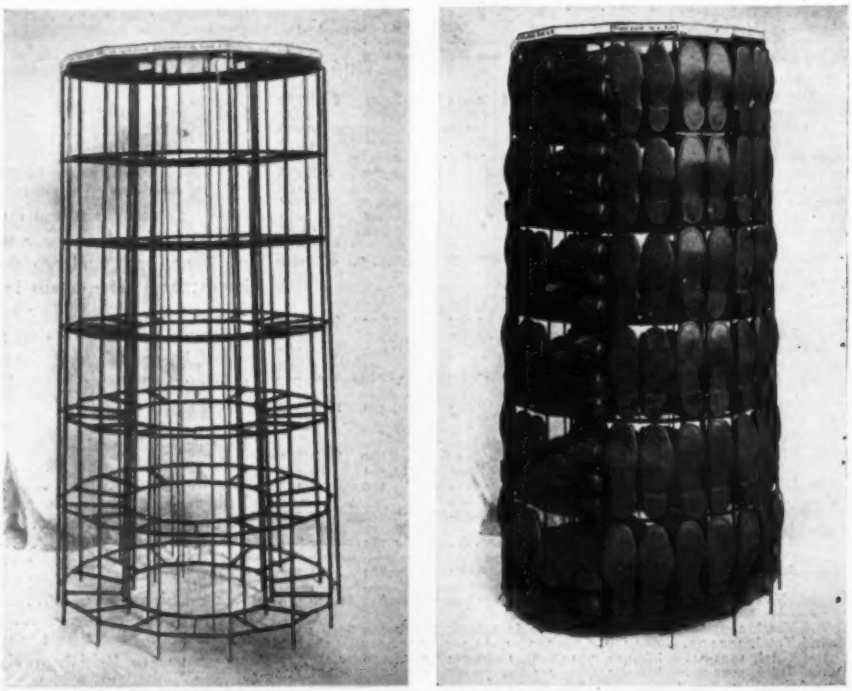
AN illustration on this page relates to a device commended to the use of gas makers who are seeking to avoid the possibility of danger to their men while working about trenches and stations. This is the Barnum Respirator. In its use fresh air is supplied to the cap by pump and hose, and the pressure inside, being greater than that from the outside, keeps out the gas. The surplus air from the pump and the productions from the lungs

BARNUM RESPIRATOR—OIL TANK REPAIRING AND METER REPAIRING.

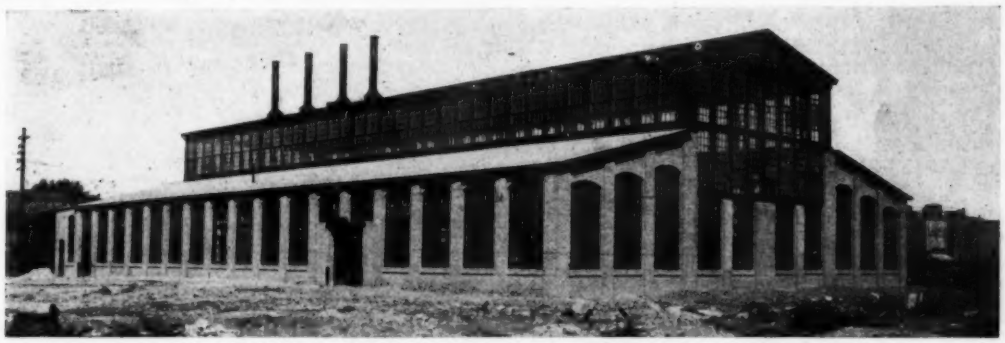
are forced out around the edge of the cap, which is held just tight enough by elastic bands to allow escapement. The complete outfit embraces a bellows and reservoir, mounted in a strong box in which is packed the entire appliance, weighing approximately 25 pounds. A 25 foot length of tubing is fastened to the reservoir and also to the adjustable hard rubber goose neck which connects the tubing with the face cap. The goose neck is adjustable both to the tubing and the face cap, and is turned at will so that the tubing can be over the shoulder or wherever the operator wishes. This outfit is in use by a large number of gas lighting companies throughout the United States, its sale being controlled by P. L. Rider, a long established rubber goods jobber at Worcester, Massachusetts.

RUBBER FOOTWEAR RACK.

WHILE there are devices galore for the display of other boots and shoes, rubber footwear seems a feature of trade that has not had the attention that its importance would warrant. This may be due in part to the fact that there is less opportunity for the artistic to be in evidence, and displays are so signally directed to that end that the shoeman naturally endeavors to get in line with the procession rather than be conspicuous for a more commonplace trend of thought. However, some practical soul has pondered on the benefits to be derived from a commodious portable rack for rubbers alone, and we give the pictured result. The rack is made of iron, and in its construction care has been given to make it strong and rigid. It will hold conveniently 84 pairs of boots or 252 pairs of overshoes. To the initiated 252 pairs means just 21 cases. This allows for all sizes and kinds, while it makes an attractive display, it also serves the purpose of lessening labor and saving space. There are six circular shelves in this rack, each divided into compartments, which offer numerous ways for the disposition of the stock, according as the shoeman may desire. The floor diameter is 41 inches and the height 74 inches, which makes all the compartments easily accessible. One of the best features of the construction is that it may be disjointed, so to speak, and packed away if for some reason it should temporarily be put out of commission. The removal of a few small wire clamps reduces the space it normally occupies so that it can be packed away in a small compass. The racks here illustrated are supplied to the trade by Batavia Specialty Co., Batavia, New York.



NEW PORTABLE RACK FOR RUBBER FOOTWEAR.

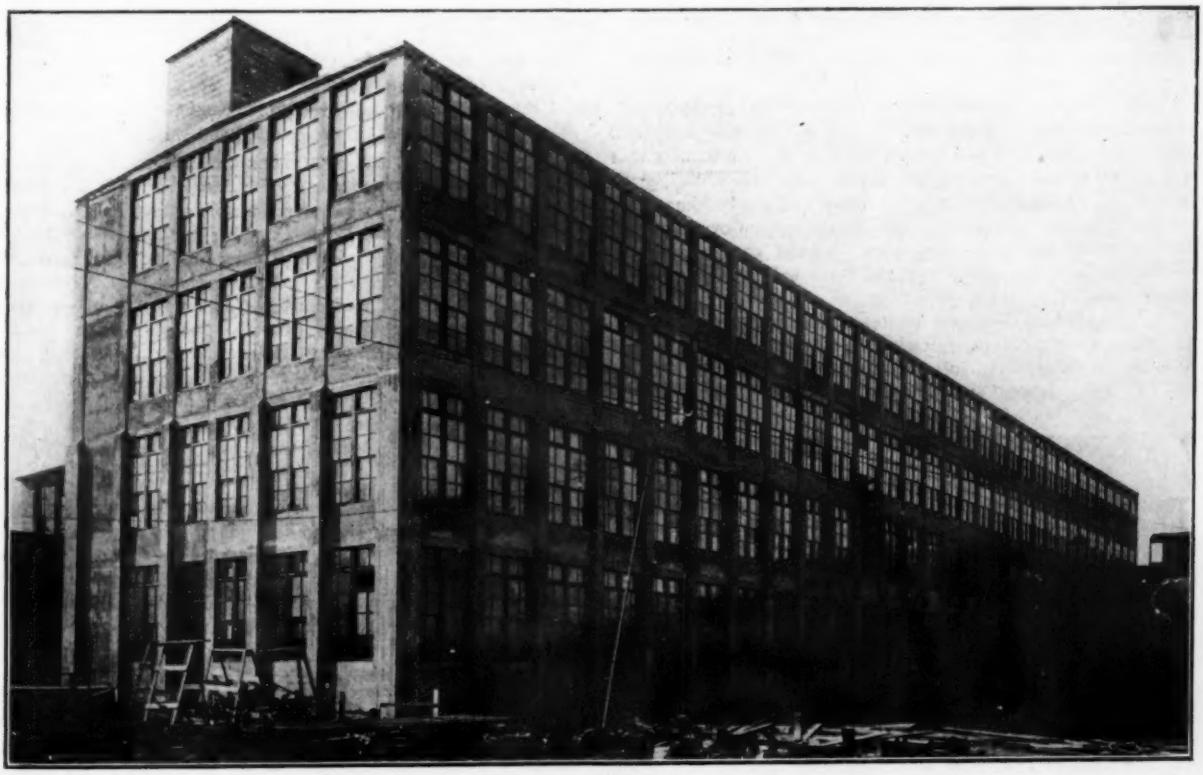


NEW BRASS FOUNDRY OF THE BOSTON WOVEN HOSE AND RUBBER CO.

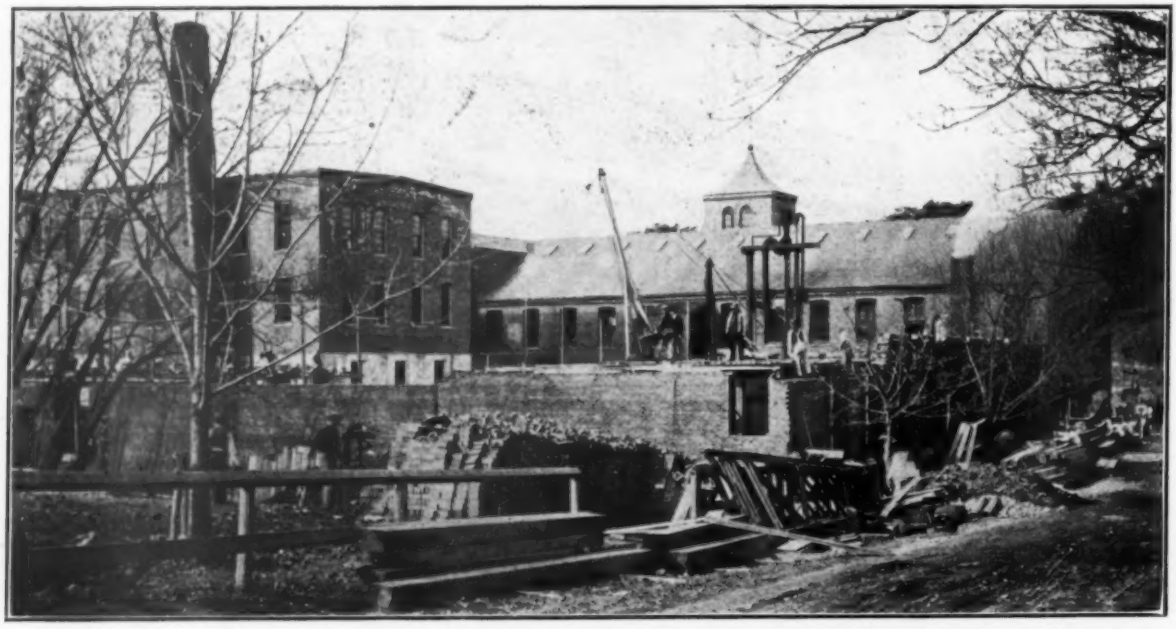
Growth of the "Woven Hose" Plant.

IN 1893 the Boston Woven Hose and Rubber Co. increased their goodly plant at Cambridgeport, Massachusetts, by erecting a huge three-story building that promised to care for all future needs for housing their growing business. To-day this addition, together with several lesser ones, and the primary plant as well, are so crowded with men, machinery, and goods in process that more room has become absolutely necessary, and for some months builders have been at work erecting great factory structures on land adjoining the original plant.

Perhaps the most interesting of these new additions is the brass foundry. Not that it is the largest of them, although it is the largest brass foundry in the United States. It is built of brick, is 75 × 168 feet in dimension, and is one story, with a lofty monitor top. It is here that such goods as the "Boston Nozzle" are made, together with a widely varying line of brass accessories to the hose trade, both for the home company and for manufacturers and dealers everywhere. Next in interest and of even more consequence is a fine four-story building of reinforced concrete, 60 × 325 feet, for the manufacture of hose, mats, and smaller press work. This building is as perfect in detail as could be designed, with concrete floors, wide prism glass windows, elevators, electric lights, and so on. On the ground floor are set the presses and machinery for the small work; on the next floor are the machinery and the vulcanizers for hose of the common or garden variety; on the third floor are tables and appliances for the manufacture of special large



BOSTON WOVEN HOSE AND RUBBER CO.'S NEW HOSE AND PRESS ROOM.



RECLAIMING PLANT AT PLYMOUTH OF THE BOSTON WOVEN HOSE AND RUBBER CO.

hose as suction, dredging sleeves, and the like; while on the top floor is stock and finished goods.

The largest building, really two buildings joined at the end, is for storage and shipping. This is four stories in height, of reinforced concrete, light, fireproof, and 550 feet in length by 50 feet average width. Here also will be located, when completed, the factory offices, laboratory, and experimental department of the company, now in the old plant, which space when vacated will be used in manufacturing and will be quite an addition and a needed one.

While the Cambridgeport plant is thus growing, the company's reclaiming factory at Plymouth has also been rebuilt lately and added to, so that it is now of a capacity and completeness that will fill all possible needs. All of this work begun during the past summer is now practically completed and the buildings now for the most part occupied. Not that other improvements are not projected, however, such as a tidewater canal, additional railroad sidings, new machinery, and other buildings, but of this "more anon."

The illustrations herewith relate to the new brass foundry of the company, put in operation October 14, 1907; the new hose and press building, just now completed, and the reclaiming plant of the company, at Plymouth.

CRUDE RUBBER INTERESTS.

HIGH RATES ON THE CONGO RAILWAY.

THE rate on crude rubber charged over the Congo railway—for a distance of only 260 miles around the cataracts in the Congo river, and only a small fraction of the distance between the producing regions and the consuming markets—will help to make plain why the raw material remains so high in price, compared with the reputed small first cost to the trading companies. The starting point by rail, as cargoes proceed toward the Atlantic, is Leopoldville, and the lower railway terminal at Matadi. The rate per ton of rubber, expressed in equivalent terms of American gold, from Leopoldville, and the intermediate stations, to Matadi, is as follows:

From Leopoldville.....	$82.99	From Thysville.....	$47.86
From Kinshasa.....	80.87	From Tumba.....	38.79
From Dolo.....	80.48	From Songololo.....	20.84
From Madimi.....	59.25	From Kengé.....	8.30

The rate for the whole distance covered by the table works out at about 37⅔ cents per pound. This rate, however, is low as compared with that on ivory—87.

ABYSSINIA.

A RECENT statement issued by the Imperial Ethiopian Rubber Co., Limited [see THE INDIA RUBBER WORLD, June 1, 1907—page 274], mentions the shipment from their concessions in Abyssinia of 90,278 pounds of rubber, of which 62,899 pounds had reached London and over 50,700 pounds been disposed of. The company are also shipping coffee and wax.

THE TEXAS GUAYULE CONTRACT.

THE following letter relates to a rumor regarding a contract for the sale of guayule slumbs on the state school lands in Texas [see THE INDIA RUBBER WORLD, October 1, 1907—page 21]:

TO THE EDITOR OF THE INDIA RUBBER WORLD: I am in receipt of yours of the 6th in which you state that you are informed that the Big Bend Manufacturing Co., of San Antonio, have let go their contract to purchase the guayule school land in Texas. You are advised that I know nothing about what they have done, more than to say that they have paid into the state treasury of Texas the full amount of $61,000 on the contract.

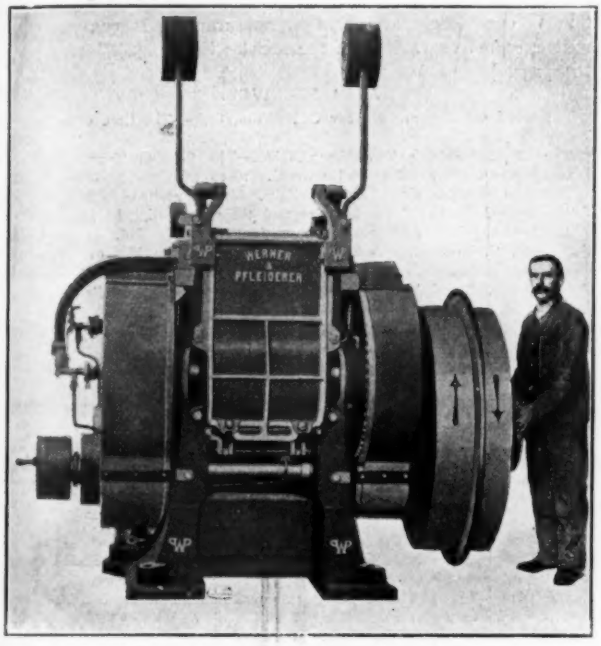
Very respectfully, J. T. ROBISON,
Acting Commissioner [General Land Office].
Austin, Texas, December 11, 1907.

A NEW invention is mentioned providing for the construction of telephone receivers so that the shell may be made largely of metal, only the cap—that part which fits over the ear—being made of hard rubber. The magnetic system is entirely insulated from the shell, being mounted on a hard rubber bushing which is secured in proper place within the casing. The new method is referred to as reducing materially the cast of receivers.

AMONG recent visitors to New York was Monsieur Louis F. Kerremans, of Brussels, who is identified with the management of *La Chronique Coloniale et Financiere*, which journal is among the foremost of those interested in the promotion of the rubber culture.

RUBBER MIXING MACHINERY.

TWO types of machines for massing crude rubber, one English and the other American, have existed almost from the beginning of the rubber manufacture. The two-roll mixing mill developed at the Roxbury Rubber Works showed the American idea, and the massing machine invented by Thomas Hancock at Charles Macintosh's factory the English. Almost exactly the same types of mill mixers, only larger and stronger,



WERNER-PFLEIDERER PATENT MASTICATOR.
[Universal Kneading and Mixing Machine.]

are used in America to-day for massing, while the masticator, which is very largely used in European practice, is nearly the same as that which Hancock finally evolved.

One harks back to 1820 to find the beginning of the masticator. At that time, Hancock made a small wooden framed machine in which was a wooden cylinder studded with teeth that revolved in another cylinder, also toothed, in which the charge of rubber, only a couple of pounds, was put and the machine turned by hand until the gum was homogeneous. In 1840, however, new buildings and new machinery were put up at the Macintosh factory, and the "monster" masticator was installed. This took 200 pounds at a charge and was very successful. Of course, the Hancock patents of masticators have long ago expired and the big machinery builders have taken over the making of them, adding from time to time various improvements. One of the accompanying illustrations shows the modern up-to-date masticator as it is in use in hundreds of European rubber factories at the present time.

HANCOCK'S MASTICATING MACHINE.
[From Hancock's "Personal Narrative."]

PARAGUAY.—Referring to a recent mention of native rubber trees in this republic, the United States consul at Asuncion reports that at this time little or no rubber is produced in the country, though undoubtedly considerable could be found along the northern frontier, a region which is almost wholly undeveloped. The Brazilian state of Matto Grosse exports rubber via the Paraguay river and Asuncion, but no record is kept in Paraguay of such shipments. Nicholas Baez, in the *South American Journal*, says that a rubber tree known locally as "mangá-icé" is abundant in northern Paraguay, and is a good rubber tree, and also that the "maniçoba" is found there. In 1890 the United States consul at Buenos Aires mentioned the "mangá-icé" tree as then yielding considerable rubber in northern Paraguay. The French authority, H. Jumelle, considers the "mangá-icé" tree to be *Hancornia speciosa*.

TOKIO EXHIBITION.—The total attendance at the Tokio Industrial Exhibition, in regard to which a report appeared in THE INDIA RUBBER WORLD of October 1 (page 21), is reported to have been 4,522,596 during the first 94 days, or over 48,000 per day. The highest attendance for one day was 116,000.

THE Passburg vacuum dryer, in use so successfully in rubber goods factories and also in the preparation of plantation rubber, is reported to have given good results in the drying of cacao in Kamerun, West Africa.

EXPORTS of crude rubber from Ecuador during 1906 amounted to 1,391,652 pounds, of which 1,185,600 pounds went to the United States.

ACCORDING to the year book of the Touring Club of Italy there will soon be 153 motor 'bus lines in operation in that country, many of them being subsidized by the government. It is suggested that a commercial vehicle competition should be held along with the touring car events during the Brescia automobile week next year. Baron Georges de Caters, of Belgium, after a sojourn of a year in Japan, recently arranged for a motor 'bus service in a large city in the latter country of 125 vehicles.

WITH a view to promoting commercial relations with foreign countries, and at the instance of the Associaciao Commercial of Amazonas, the tax levied on commercial travelers by that state and by the municipality of Manàos is to be removed.

AN American consular report refers to the introduction of rubber-tired jinrikishas in Rangoon, Burma, which promise to become as popular as they are in Singapore and Penang and various Chinese cities.

NEW TRADE PUBLICATIONS.

THE GUTTA PERCHA AND RUBBER CO. OF TORONTO, LIMITED. issue a collection of catalogues of their products, the first of the new issue being their catalogue M-11, descriptive of Mechanical Rubber Goods of which they make an exceptionally full line. The catalogue includes their tire products, among which are pneumatics of the Fisk type and the endless solid Kelly-Springfield tires. Various items of sporting goods are included, and also fire hose accessories. This catalogue is handsomely bound in boards. [5¾″ × 8⅝″. 132 pages.] A series of accompanying booklets are labeled respectively Rubber Belting, Rubber Hose, Rubber Packing, and Rubber Mats, each of these being fuller than the departments in the general catalogue devoted to these subjects. These booklets are of the same size pages as the general catalogue, and are run from 24 to 48 pages. The belting catalogue devotes considerable space to illustrations of Canadia grain elevators which the company have equipped with rubber.

DAVID MOSELEY & SONS, LIMITED (Manchester, England), issued under date of November 1, a new price list of Vehicle Tires and Motor and Carriage Accessories, beginning with solid tires in many patterns, including those held in place by rim compression and longitudinal wires, no fewer than 140 patterns being illustrated, and weighing from less than 10 ounces to 5 pounds 10 ounces per foot in length. The catalogue includes also twin 'bus tires (solid), jinrikisha tires, carriage brake blocks, motor mats, tube cases, tire gaiters, horn bulbs, motor car hose, and motorists' toilet articles (rubber brushes and the like). The catalogue relates only incidentally to Moseley's detachable tire, their principal product in pneumatics. [7¼″ × 9¾″. 36 pages.]

HODGMAN RUBBER CO. (New York) issue a new illustrated price list of Druggists' Sundries and Miscellaneous Rubber Goods, illustrating their standard products and not a few novelties likely to prove of interest to the trade. [6½″ × 8⅞″. 53 pages.]

KANSAS CITY RUBBER AND BELTING CO. (Kansas City, Missouri), a new jobbing concern, issue a catalogue of mechanical rubber goods, including most of the articles usually listed under this heading. [5¼″ × 7¾″. 38 pages.]

JOHNSON & PHILLIPS, LIMITED (Charlton, Kent), issue a catalogue of Paterson's Aluminum Electric Cables, which are offered as having advantages over copper cables in certain circumstances. [7″ × 9¼″. 8 pages.]

THE STAMFORD RUBBER SUPPLY CO. (Stamford, Connecticut) issue a brochure containing testimonials from important rubber manufacturers testifying to the good quality of their rubber substitutes. [3¼″ × 6″. 11 pages.]

FLEXIBLE RUBBER GOODS CO. (Winsted, Connecticut) issue a new catalogue, "Tubbing and Rubbing Wisdom," devoted to the details of their hollow tooth rubber brushes for toilet purposes. [3⅛″ × 6″. 16 pages.]

SANITATSWARENHAUS LUTZ (Baden-Baden, Germany) issue a new illustrated catalogue of Hygienic Articles, of the importation of which they make a specialty. [4⅞″ × 7⅝″. 24 pages.]

HOOD RUBBER CO. (Boston) are distributing in the trade some booklets for general circulation, relating to rubber footwear, that are novel in character and certainly readable and amusing, while containing some very practical suggestions regarding waterproof shoes. Two of them are entitled "What He Knew About Her Rubbers" [3⅛″ × 6″. 20 pages] and "Heard in the Coat Room" [3⅛″ × 6″. 11 pages].

GENERAL ELECTRIC CO. (Schenectady, New York) include in their vast scope of production not only rubber insulated wire, but a large number of other articles embracing more or less rubruber, to an extent which renders them very considerable rubber manufacturers. Their Specialty Catalogue No. 3463 is devoted in part to the rubber goods referred to, including various types of insulating tape and splicing gum, fuses, insulating devices, and the like. [6½″ × 3⅝″. 212 + 133 pages.]

THE VICTOR RUBBER CO. (Springfield, Ohio) issue a catalogue of Rubber Mats and Matting, which they make in a great variety of styles and for very many purposes, including carriage and the like. [6½″ × 3⅝″. 212+133 pages.]

THE CELLULOID CO. (Nos. 30-36 Washington place, New York) have issued a new catalogue of goods of their manufacture, including brushes, combs, mirrors, toilet articles and fancy goods that is exceedingly attractive in appearance. It contains 524 well executed engravings of the articles listed. [6¾″ × 10¼″. 104 pages.]

ALSO RECEIVED.

THE Goodyear Tire and Rubber Co., Akron, Ohio—The Care of an Auto Tire. 24 pages.

The B. F. Goodrich Co., Akron, Ohio.—The Glidden Tour; What it Demanded and What it Proved [in tires]. 16 pages.

The Fisk Rubber Co., Chicopee Falls, Massachusetts.—A Chapter of Accidents and Facts. [Tire troubles and their prevention.] 32 pages.

The Bristol Co., Waterbury, Connecticut.—Bulletin No. 57—Bristol's A. C.—D. C. Recording Voltmeter. 4 pages. Bulletin No. 61.—Bristol's Recording Voltmeters. 12 pages. Bulletin No. 62.—Bristol's Recording Ammeters, D. C. and A. C. 16 pages. Bulletin No. 63.—Bristol's Recording Wattmeters. 20 pages.

David Moseley & Sons, Limited, Manchester, England.=Durability of Pneumatic Tires. 8 pages.

Hopewell Brothers, Cambridge, Massachusetts.=Hopewell Tire Case. 4 pages.

The Springfield Tire and Rubber Co., Springfield, Ohio.=Springfield Abrasive Polishing Wheels and Blocks. 8 pages.

Ajax Rubber Co. of California, Los Angeles.=Ajax Tires. 8 pages.

Prescott Brothers, Boston.=Prescott Brothers Rubber Store. Christmas Suggestions. 6 pages.

G. & J. Tire Co., Indianapolis, Indiana.=Proper Tire Construction. 12 pages.

The Boston Tire Tread Co., Boston.=The Boston Tire Tread. 4 pages.

The "So-Lite" Rubber Co., Rochester, New York.=So-Lite Pocket Rubbers for Women. 8 pages.

The Diamond Rubber Co., Akron, Ohio.=Diamond Tires and the Vanderbilt Race. 12 pages.

Dr. Jeanne Walter, New York.=Medicated Rubber Garments [for reducing flesh]. 12 pages.

The G & J Tire Co., Indianapolis, Indiana.—"The Last (?) Ride Together" [a story; and] Proper Tire Construction. 28 pages.

The Polack Tyre Co. (F. Poppe, manager), London. (Factories at Walterhausen, Germany.—Price List of "Superior" Solid Rubber Tires. 32 pages.

Johnson & Phillips, Limited, Charlton, Kent, England.—(*a*) List of Wires and Cables, No. 14. 40 pages. (*b*) Electric Cable Making Machinery. 16 pages.

Hopewell Brothers, Cambridge, Massachusetts.—Automobile Fabric Supplies. 16 pages.

Dunham Brothers, Brattleboro, Vermont.—Catalogue of the Victor Brand of Rubber Boots and Shoes. 61 pages.

Robins Conveying Belt Co., New York.—Bulletins [No. 12 to No. 17, inclusive. Hoisting and Conveying Machinery, with Robins's Rubber Belts.] 108 pages.

COLONEL THEODORE AYRAULT DODGE, some time prominently connected with the rubber industry, was even then, as he had been before and has since been, at work upon a life of Napoleon, the final volume (the fourth) of which has just been brought out by his publishers, Houghton, Mifflin & Co. (Boston). This work is widely regarded as the ablest history of the military life of Napoleon that has been written in English. This work is part of a series devoted to the lives of great commanders, and Colonel Dodge is at work upon the history of Frederick the Great, the completion of which will mark the end of a program which has occupied him for more than 30 years.

THE New York shoe jobbing house of Nathaniel Fisher & Co. who are important as handlers of rubber footwear, has entered upon its seventieth year. The business has been a corporation since 1905, the president, Irving R. Fisher, and the secretary and treasurer, Nathaniel C. Fisher, being sons of the original Nathaniel Fisher, who died in 1880.

THE RUBBER TRADE IN SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

THE long series of holidays which the governor of the state began to declare on October 31 are still being proclaimed from week to week, although conditions with the banks have so greatly improved that it is believed there will be no more special holidays after the first of the year. In Oregon the holidays have been discontinued and business has gone ahead with a very fair degree of prosperity. In the Washington state it was not necessary to declare holidays at all. The reports from all of the rubber houses, and from merchants generally in San Francisco is that there is a good amount of business, but the trouble is that it is almost impossible to get payments, while the eastern manufacturers, who are themselves in need of ready money, are pressing for remittances. Houses of the very best standing are frequently months behind in their payments, and yet the confidence is so great that merchants do not hesitate to sell them all the goods they want.

W. Perkins, president of the Sterling Rubber Co., on Market street, reports that they are keeping up a good stock, keeping all of their men out on the road, and that conditions are brightening, trade being much better now than it was three weeks ago. "I have come to the conclusion," he said, "that next year is going to be better than 1907 has been, notwithstanding that during portions of this year business was unusually good owing to the fact that there was an abnormal demand to re-stock with goods that had been destroyed in the big fire. A big business is settling towards the coast, and although a presidential election is in sight, it will not effect this coast much. Reports from the trade centers where this season's crops from California have been marketed show that the quality has been good and the products have brought high prices. All of the interior of the state is being exploited and developed, and in San Francisco the enormous building activity, and the great work which the municipality has commenced in reconstructing the streets and public properties are making conditions active everywhere. Besides, the big fleet of battleships will bring a great deal of business here."

The Pacific Coast Rubber Co. will remove early in January from their temporary quarters on First street to their new building at Nos. 416-422 Mission street. The new building is of modern type, with reinforced concrete to render it fireproof, and when the fixtures now being installed are complete it will be one of the finest rubber stores anywhere.

C. Kirkpatrick, of the San Francisco rubber trade, has returned the northern coast states and reports that he noticed everywhere that money matters were loosening up. In Oregon, where the holidays have been declared off, the banks are paying cash without any difficulty. "I met with a very good trade," he said; "everybody is adopting a careful and conservative system in buying, and they will all pull out all right. When normal conditions are entirely restored there will be a big business, because the dealers will have to buy to fill up their depleted stocks."

W. J. Gorham, of the Gorham Rubber Co., is paying rent on three or four establishments in Oakland and San Francisco, where his business has been scattered since the great fire, but he is now pulling everything together in his big new building on Fremont street, between Market and Mission, where he has a five-story building with a 60-foot frontage, a depth of 137 feet and 40,000 feet of floor space. He is fixing up the building to stay, having taken a fifteen-year lease at $900 per month, and he is fitting it up with every convenience that money can buy. The basement is equipped with power and steam heat to run the factory and the three elevators, with an engineer in charge. In the basement storage room only full rolls of belting are kept, and when they are cut they are sent up to the mechanical department. No packing or unpacking is done on the main floor which is devoted for salesrooms and offices. One feature of the office is a separate room devoted to stock taking, where the sales are deducted every night from the $500,000 stock. The man in charge of this department does all of the ordering. The second floor is devoted entirely to mechanical goods. Separated from the other departments, on the rear of this floor is the bicycle department. The third floor is devoted to rubber boots and shoes and oil clothing. On the fourth floor is the factory and there will soon be installed some twenty presses. "I expect to do a $2,000,000 business next year," said Mr. Gorham, "and that means a big stock and a lot of rustle."

The Phoenix Rubber Co. report that they have not had a poor month yet, but just now collections are extremely bad. They are getting their factory ready for a special output in tires after the first of the year, when they expect the conditions to be greatly improved.

Herbert K. Selby, representing the Boston Woven Hose and Rubber Co. in Oregon, Washington, Idaho, British Columbia and Alaska, is in San Francisco spending the holidays with Joseph V. Selby, the local representative of the firm.

ELECTRICAL NOTES.

THE annual electrical show in Chicago, to be held in the Coliseum on January 13-25, under the auspices of the Electrical Trades Exposition Co., promises to be of great interest as a medium for displaying a wide variety of domestic appliances, but the list of exhibitors does not include any of the leading companies in the insulated wire field.

A recent German patent granted to Robert Müller, of Munich, describes an insulating material claimed to be fireproof, and to have a high specific resistance which makes it compare favorably with rubber or porcelain. The process for making it consists in combining a fire resistant material, such as comminuted asbestos, with mineral pitch dissolved in a suitable solvent, so proportioned that a consistent plastic mass is formed, then subjected to heavy pressure, preferably in a cold state, and dried by the evaporation of the solvent. The proportions mentioned are 100 parts of mineral pitch dissolved in 20 parts of solvent; from 25 to 75 parts of solution may be used with 100 parts of asbestos. It is stated that the pitch used is so non-inflammable that it may be subjected temporarily to an electric arc without being burned up or softened.

FIREPROOF ELECTRIC CABLE.

CONSIDERABLE attention has been attracted in England by the results attained with a new fire resisting cable, after some rather remarkable tests. The cable is made up of the ordinary conductor, insulated with a thick lap of pure Pará rubber and vulcanized rubber, and taped. This is surrounded with several layers of manila paper with a solution to render it non-inflammable. Over this is a strong, flexible woven braiding of small steel wires, which in its turn is covered with more of the manila paper, the whole being finished with braiding of jute, also impregnated to render it non-inflammable. It is stated that the tests were quite successful and that the makers' claim proved true that the cable is amply able to hold the first flash and prevent ignition of the melted rubber. Even when red hot at one point, no flame was present nor did any of the incandescent portions tend to fall away from it. This is known as the Paterson cable and has been developed in the works of Johnson & Phillips, Limited, at Old Charlton.

* * *

PIRELLI & Co. (Milan, Italy) are reported to be manufacturing a cable for 100,000 volt circuits. The core is covered with a lead sheathing, after which comes a layer of rubber about 2.5 millimeters thick, and two other layers of rubber, respectively 2.3 mm. and 4.5 mm. thick. The latter is covered with a layer of impregnated paper 5.2 mm. thick. Lastly come a layer of hemp and a lead sheating. The thickness of all the insulating layers is 15 mm. and the total diameter of the cable is 60 mm. [=2.36 inches].

News of the American Rubber Trade.

BOSTON BELTING CO.—ANNUAL.

AT the annual meeting of shareholders of the Boston Belting Co., held Nov. 29, these directors were elected: James Bennett Forsythe, J. H. D. Smith, Lewis M. Crane, Charles H. Moseley, Francis H. Stevens, William H. Furber, and George A. Miner. The board is the same as last year, except that Mr. Miner, a director some time ago, succeeds Edwin A. Hildreth, deceased. The officers were reëlected: James Bennett Forsyth, president and general manager; J. H. D. Smith, treasurer and clerk. Thomas Lang, one of the three auditors, retires after 19 years' service, and is succeeded by Charles J. Upham. The balance sheet as of September 30, 1907, stood as follows:

ASSETS.

Real estate—Lands and buildings	$190,312.67
Machinery	235,707.70
Tools, furniture and fixtures	95,850.08
Cash	22,947.44
Bonds and notes and accounts receivable, investment account	701,956.85
Merchandise	1,022,260.15
Trade marks	100.00
Sundries	800.00
Total	$2,269,934.89

LIABILITIES.

Capital	$1,000,000.00
Reserve Fund	800,000.00
Profit and loss	381,934.89
Notes payable	88,000.00
Total	$2,269,934.89

The usual quarterly dividend of 2 per cent. was declared and was payable on January 1.

SAFETY INSULATED WIRE AND RUBBER CO.

IT is announced that H. E. Huntington, widely known in railway circles, has acquired a controlling interest in the $1,500,000 capital stock and $1,228,000 outstanding bonds of the Safety Insulated Wire and Cable Co., and C. E. Graham, Mr. Huntington's representative in New York, has been elected vice-president of the company. The Safety company some time ago joined the combination known as the National Steel and Wire Co., one of the branches of which, the National Wire Corporation, went into the hands of a receiver early in the year and later was sold out. The Safety company has a very large business, and has filled extensive orders for the United States government.

Everett Bertram Webster, president of the National Steel and Wire Co., and a director in the Safety Insulated Wire and Cable Co., died suddenly on December 2 at Jacksonville, Florida. His home was at Lynn, Massachusetts.

NEW COTTON DUCK MILLS.

THE Passaic Cotton Mills, at Passaic, N. J. [see THE INDIA RUBBER WORLD, August 1, 1907—page 355], began operations on December 5. The product of the plant is the finest grade of cotton duck for fire hose and automobile tires and for other mechanical purposes. The company own the Worcester Rubber Tire Duck Co., in Massachusetts, which plant is still in operation, but will be shut down as soon as the new factory is able to cope with the demand. Catlin & Co., of New York, are the selling agents. George H. Hay, treasurer of the Fabrikoid Co. (Newburg, N. Y.), is president; R. P. M. Eagles, of Catlin & Co., is vice president; Louis R. Cowdrey, also of Catlin & Co., is secretary and treasurer, and the remaining directors are Frank Ball and Charles E. Sampson.

There is a movement on foot to organize a stock company for the erection of a mill at Morristown, Tennessee, for the manufacture of convertible cotton goods for the rubber and linoleum trades, to be capitalized at about $150,000.

RECOVERY FROM A FIRE.

THE Leather Tire Goods Co. (Newton Upper Falls, Massachusetts) advise THE INDIA RUBBER WORLD that they have practically recovered from the effect of the fire in their plant which occurred on November 14. They are shipping goods and rapidly catching up on orders that had got behind. The company manufacture the Woodworth patent detachable steel studded leather treads for pneumatic tires. The building burned formed part of the plant of the old Newton Rubber Works.

A fire in the asbestos works of The H. W. Johns-Manville Co., Nos. 914-916 North Broadway, St. Louis, caused a loss to stock reported at over $100,000, which is understood to have been fully covered by insurance.

NEW BUILDINGS AT STAMFORD.

THE new buildings of The Stamford Rubber Supply Co. (Stamford, Connecticut) will be of reinforced concrete. The main building is to be 50×122 feet and two stories high, with a three story extension 18×62 feet, and a one story power house 25×50 feet. The buildings will be well lighted and the equipment the best to be had, the power plant particularly having been designed with a view to the greatest possible economy in working. It is understood that the factory will have some features that are unique in the manufacture of rubber substitutes, and the capacity will be several times that of the old plant.

RECEIVER FOR THE PARA RECOVERY CO.

THE plant and business of the Pará Recovery Co., of Bayonne, New Jersey, have been placed in the hands of a receiver, upon the application of Robert E. Dearburg, filed on December 9. The court appointed Pierre F. Cook, of No. 1 Exchange place, Jersey City, who is referred to as being in this case a "complacent receiver." It is asserted that the assets of the company are larger than the liabilities. The application for a receivership was voluntary on the part of the company, being due to the heavy drop in the price of the rubber in competition with which their products are sold, and the current monetary stringency.

HARTFORD RUBBER WORKS CO.

E. R. BENSON, who has been connected with The Hartford Rubber Works Co. for several years, being latterly secretary, has resigned to become identified with the Cadillac Motor Car Co., at Detroit, Michigan.

The Hartford Rubber Works Co. have removed their Boston business to larger premises in the Heard building, No. 817 Boylston street, which will be their only branch in Boston. They had been situated for six years in Atlantic avenue, and their reason for moving is to become more centrally located in the automobile district.

E. D. Robbins has secured an attachment against property of The Hartford Rubber Works Co. to the amount of $150,000, in a suit in behalf of Louis D. Parker, former president of the company, who claims damages in connection with his retirement from that office in 1904.

The Hartford Rubber Works Co., in carrying out their annual custom of giving a Thanksgiving turkey to every employé of their Hartford factories, gave away this season more than four tons of the "national bird."

RECEIVERS FOR THE ELECTRIC VEHICLE CO.

THE Electric Vehicle Co., a New Jersey corporation formed September 27, 1897, with $10,000,000 capital authorized (increased later to $20,000,000) to manufacture automobiles, on December 10 went into the hands of receivers in two states. In New Jersey, in the United States circuit court, Halsey M. Barrett and Harry W. Nuckles were appointed receivers, and in New York, in the United States circuit court, Mr. Barrett and

William S. Montgomery were appointed ancillary receivers for the property of the company within the jurisdiction of that court. The company was organized with Isaac L. Rice as a moving spirit, owned the Selden patent for gasolene cars, and manufactured electric automobiles largely, with a plant at Hartford, Connecticut, the late George H. Day, of the Pope Manufacturing Co. being at one time president. The company established electric cab services in several cities, but of all the subcompanies the New York Transportation Co., controlling the electric cab business in New York City, alone survives. In 1899 the company paid dividends of 8 per cent. on the common and preferred shares, since which time no dividends have been paid. On November 1 last the company defaulted on the payment of $2,600,000 in bonds. The bill asking for the appointment of receivers was filed by the Hartford Rubber Works Co., who allege that the sum of $11,785.65 is due them. It is stated that a plan for reorganization is in preparation. The company, it is declared, was overcapitalized in the first instance, and the business will be restored and conducted under sound management.

NEW INCORPORATIONS.

JOHN B. THOMSON Revolving Rubber Heel Co., November 11, 1907, under the laws of New York; capital, $100,000. To make rubber heels and rubber goods. Directors: John B. Thomson, W. J. Benedict, W. J. O'Brien, and Fred Knowlton, all of New York City.

Rochester Footwear Co., November 12, 1907, under the laws of New York; capital, $25,000. To make rubbers, boots, and shoes. Directors: D. S. Donaldson, S. Schwartzchild, Albert J. Groh, and two others, all of Rochester, N. Y.

Mears Rubber Co., October 28, 1907, under the laws of New York; capital, $50,000. To manufacture horseshoe pads. Directors: Camden Mears (No. 84 Saratoga avenue), Elmer E. Mears, and Frank Mears, all of Brooklyn, N. Y.

SPALDING & BROTHERS IN ENGLAND.

THE plant of A. G. Spalding & Brothers, athletic goods manufacturers, at Putney Wharf, London, from an extensive description in *The Sports Trader*, also of London, would appear to be the largest establishment of the kind in Great Britain, with a more varied line of products than any other, although it has been in operation only since April, 1906. From being dealers in England in American made products, the London house of A. G. Spalding & Brothers has become thoroughly English in its organization, selling only the output of its own factory on the other side. The general manager of the Spaldings' British business is Mr. Charles S. Cox, an Englishman, who came to America some years ago to take charge of the golf department of the Messrs. Spalding in their store in Nassau street, New York. In those days the golf balls preferred were those of English origin, little success having been attained by Americans in making such goods. But in an interview in THE INDIA RUBBER WORLD of July 1, 1899 (page 265), Mr. Cox declared: "This will soon be the greatest country for golf in the world," and he predicted that the increase in popularity of the game in America would bring into existence here a profitable production of golf balls. The American house of Spalding have now been for some years extensive makers of golf balls in America, and the British factory, in charge of Mr. Cox, is said already to be making 10,000 per week. The London house of Spalding make also footballs and cricket and hockey balls, and all the appliances of golf—clubs, caddie bags, and so on. In fact, they forge at their plant the only golfing irons made in the United Kingdom outside of Scotland. The most distinctive feature of these works is that they manufacture every part of the goods which they market, as is the rule with the parent house in America. It may be added that the London house does an important export trade, including the supplying of their goods to all the British colonies.

The business of A. G. Spalding & Brothers was begun in Chicago March 1, 1876, by Albert G. Spalding and J. Walter Spalding, who were joined two years later by a brother-in-law, William T. Brown, when the present firm name was adopted. The original capital was $800. Albert G. Spalding had been an enthusiast in baseball from the time it became the national game in the United States, and the first business of his firm was the sale of baseball goods, made for them under contract. Later the policy was adopted of manufacturing all their own goods; their production extending gradually until all forms of athletic goods are now included. A capital of over $4,000,000 is employed and over 3000 persons are at work in the firm's factories and stores in the United States, Canada, and Great Britain.

TRADE NEWS NOTES.

THE Empire Automobile Tire Co. (Trenton, N. J.) have opened a branch house in New York City, at Seventy-third street and Broadway, under the management of Marcus Allen, formerly manager of the Auto Equipment Co., of Detroit, Michigan.

The Continental Caoutchouc Co. (New York) have added two distributing agencies to their list: The Plant Rubber Co., at Minneapolis Minnesota, and Neustadt Auto and Supply Co., at St. Louis.

The Keasbey & Mattison Co. (Ambler, Pennsylvania), extensive manufacturers of asbestos products, in connection with which they are to an extent rubber manufacturers, have established a branch house in Omaha, Nebraska, at No. 1113 Harney street, where they will carry a large stock of their products.

Twenty-nine salesmen of Morse & Rogers, wholesalers of rubber footwear who are the exclusive handlers in New York and its vicinity of the products of the Boston Rubber Shoe Co., spent a day recently at the factories of this company, taking points on the construction of "Boston" and "Bay State" rubbers. During the day the visitors were entertained at lunch at the Malden Automobile Club.

Mr. W. H. Sheldon, well known in druggists' sundries, is with the importing house of Radigan, Rich & Co., No. 31 Barclay street, New York. He also has the agency of the Mitzel Rubber Co. (Carrollton, Ohio).

The Bristol Co. (Waterbury, Connecticut) are issuing three new bulletins concerning their electrical measuring instruments, which doubtless will be appreciated by engineers who sometimes are in a quandary as to the best type of instrument applicable for the loads for which they intend to design. These bulletins will be found helpful in selecting the proper instrument. They are No. 61, No. 62, and No. 63, and may be obtained on application.

Daimler Motoren-Gesellschaft, of Untertürkheim, Stuttgart, Germany, important manufacturers of automobiles, have had registered under the United States trade mark laws the word "Mercedes," for sheet rubber goods, solid and pneumatic tires, rubber boots, shoes and leggings, caps, jackets, waistcoats, cloaks, collars, and capes.

In answer to an inquiry it may be stated that the Chicago Rubber Club, organized at a meeting on April 12, 1905, is no longer in existence. Owing to the inability of some of the gentlemen elected to office to give the necessary time to carrying on such a club, the matter was dropped after a few months, and the preliminary fees returned to the subscribers.

Federal Rubber Co. (Milwaukee, Wisconsin) have appointed as their general sales manager Mr. O. S. Tweedy, who formerly was with The Diamond Rubber Co., and whose headquarters will be at the company's factory, at Cudahy, Wis. Mr. E. S. Tweedy will represent the Federal company in the states of New York and New Jersey, with headquarters in New York city.

CANADIAN TRADE NOTES.

THE annual meeting of the Rubber Boot and Shoe Jobbers' Associaton of Canada will be held in Montreal on January 21. The secretary is N. L. Martin, No. 64 Wellington street, West, Toronto. The Rubber Shoe Manufacturers' Association meets only when occasion demands it, though the meetings of the two associations often are coincident.

Mr. S. H. C. Miner, founder of the Granby Rubber Co., does not intend to be the last of his name in the rubber business. This is well proved by the presence of his nephew in the Granby factory, where he has been for some years quietly mastering every detail of the business until he now is in charge of the whole of the manufacturing end.

RESIGNATION OF MR. RYDER.

THE resignation is announced of Frederick T. Ryder from the position of assistant general manager of the Boston Rubber Shoe Co., with which corporation he has been connected for many years. Mr. Ryder was associated with the late Hon. Elisha S. Converse, the founder of the company, almost from boyhood, and for years prior to the death of Mr. Converse was his private secretary. At the same time he filled the office of secretary, to which in time were added the duties of assistant general manager. For a long time he has been a director in the Easthampton Rubber Thread Co., becoming treasurer of that corporation in 1898. He has also been a director in several other corporations, besides being active in the social life of Boston and Malden, in which cities he is a member of several clubs. Mr. Ryder was born in Belfast, Maine, and educated partly there and partly in New Jersey.

FREDERICK THOMAS RYDER.

TRADE NEWS NOTES.

THE trustee of the Milwaukee Rubber Works Co. (Milwaukee, Wisconsin), bankrupt, has been authorized to file a new bond for $5,000, instead of the former bond for $100,000, since the assets have been converted into cash and for the most part paid to the creditors. The plant was sold some time ago to a new company and is in operation.

The American Can Co., manufacturers of tin and metal cans for a very large number of purposes, have purchased the United Can Co., of San Francisco, for a consideration reported at more than $1,000,000. The American company will now have a monopoly on the Pacific coast.

The young men, particularly if they are likable, are always welcomed by the trade, for they are to be the patriarchs one day, and perhaps the millionaires. This, by the way, is simply a preface to the announcement that a son of the Rubber Trading Co. (New York), or at least of a well known partner in it, Mr. Robert B. Baird, who is named Robert L. Baird, is now visiting the rubber factories in the interests of the house named.

The Colonial Sign and Insulator Co. (South Akron, Ohio) are well known makers of porcelain forms for rubber gloves, syringe bags, cots, and bust forms. The company have an extensive and admirably adapted plant and are turning out very excellent work.

A NEW RUBBER GOODS FACTORY.

THE Humane Rubber Horseshoe Co., whose officers have been hitherto in New York City, have secured a plant at Montgomery, New York (near Newburgh), with a view to making their own rubber cushioned horseshoes. They are equipping it for the manufacture of small mold work and repair stock for automobile tires. The company was incorporated October 26, 1903, under the laws of New York, with $2,000. This has since been increased, one certificate to that effect having been filed October 1, 1904. F. D. Palmer and Philip Hasbrouck are mentioned in connection with the enterprise.

TRADE NEWS NOTES.

THERE has been no meeting of the Western Mechanical Rubber Goods Association, of San Francisco, since the fire in April, 1906. A member of the trade who was active in the organization writes to THE INDIA RUBBER WORLD: "The members of the association have been extremely busy since our disaster and have not been able to get together, but no doubt at a later date we will."

A report has reached Keene, New Hampshire, that Roland Stearns Pollard, a native of that town and superintendent and manager in charge of the plantation of the Yaveo Plantation Co., with headquarters at St. Joseph, Missouri, and a rubber estate near San Juan Evangelista, Vera Cruz, Mexico, was shot and killed by a foreman on the plantation on November 24. He was 26 years of age and had been with the company since 1903.

Federal Rubber Co. (Milwaukee, Wisconsin) are turning out a new reclaimed rubber, made under the patents of W. A. Köneman, who has been made the manager of their works. They are not marketing any reclaimed rubber, but utilizing the product in their own manufactures. The results obtained from the new process have been very satisfactory and the company are largely increasing their facilities for reclaiming rubber.

An automobile tire made of reclaimed rubber, aluminum flake and a small proportion of sulphur, which had been running on a heavy touring car for more than six months and which was in virtually perfect condition, was recently on exhibition in an Akron store. It was regarded as a very substantial testimony to the rubber preserving property of Aluminum Flake.

The Buffalo Rubber Manufacturing Co. (Buffalo, New York), who manufacture rubber specialties for patentees and large consumers, have an attractive and up-to-date plant and the best possible facilities for turning out this class of work.

The L. & M. Rubber Co. are a new manufacturing concern located at Canton, Ohio, making a very attractive line of seamless goods. Messrs. John Lee and Harvey Miller compose the company, Mr. Miller having been for years successfully identified with the rubber trade in Akron and the vicinity. Mr. Lee, who has charge of the office department, is a successful young business man well known in Canton and its vicinity.

Mr. F. R. Moore, of The Akron Rubber Engineering Co., is a well known designer of rubber mills and factory equipment. Mr. Moore's work is not confined to designing but includes specification and superintendence of construction. His recent erection of the plant of the Star Rubber Co., at Akron, is a creditable achievement.

In regard to the financial situation, Albert B. Beers (broker in crude india-rubber and commercial paper, No. 68 William street, New York), advises: "During December the market for paper has remained in the same condition as in November, there being only an occasional demand, mostly from out-of-town banks, and ruling rates being 9@10 per cent. for anything in the rubber line."

To accommodate their growing American business The Hanover Rubber Co., Limited (Hannoversche Gummi-Kamm Co., Actiengesellschaft), have established an independent agency for the United States and Canada at No. 27 West Fourth street, New York, in charge of Mr. Julius Lehmann, who has been American representative since 1884, associated with George Borgfeldt & Co. Mr. Lehmann will also represent Phil. Penin, Gummiwaren-Fabrik, Actiengesellschaft, of Leipsig.

CONDITION OF THE INDUSTRY.

SEVERAL rubber shoe factories were idle during the last two weeks in the year, due to the unsettled condition of business and the policy of not manufacturing for stocking purposes. Notices of curtailment of work began to be given immediately after the financial flurry reported in these pages a month ago, and it was stated that goods would be made only on actual orders. In several cases there has been more activity than was expected, and the condition of the industry is more favorable than was forecasted by the earlier reports. A member of the trade estimates that the snowfalls during the first half of December gave such an impetus to the movement of stocks of rubber footwear as to call for a further two weeks' production. It is expected that the factories generally will be in operation from the beginning of the year.

Both in the footwear and some other branches some factories have been running on shorter time, or with reduced forces. On the other hand, a number of factories have been fully employed. It has been pointed out that certain factories depending chiefly upon demands from railway and other large corporations have felt the loss of business more severely than those concerns whose trade is more general in character. Concerns having a large number of dealers as customers have enjoyed a more constant demand than those who supply each a limited number of corporations.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending December 21:

COMMON STOCK.

Week	Nov.	30	Sales 1150 shares	High	17	Low	14
Week	Dec.	7	Sales 5775 shares	High	23⅛	Low	17⅞
Week	Dec.	14	Sales 2310 shares	High	22	Low	18⅜
Week	Dec.	21	Sales 805 shares	High	19½	Low	18¾

For the year—High, 52½, Feb. 16; low, 13½, Nov. 21.
Last year—High, 59½; low, 38.

FIRST PREFERRED STOCK.

Week	Nov.	30	Sales 1510 shares	High	67	Low	64½
Week	Dec.	7	Sales 2330 shares	High	80	Low	68¾
Week	Dec.	14	Sales 1454 shares	High	79½	Low	74⅞
Week	Dec.	21	Sales 1100 shares	High	76½	Low	75

For the year—High, 109⅞, Jan. 7; low, 61¼, Oct. 30.
Last year—High, 115; low, 104¾.

SECOND PREFERRED STOCK.

Week	Nov.	30	Sales 200 shares	High	41¾	Low	41¾
Week	Dec.	7	Sales 650 shares	High	48½	Low	42
Week	Dec.	14	Sales 120 shares	High	45	Low	45
Week	Dec.	21	Sales 160 shares	High	45	Low	45

For the year—High, 78¼, Jan. 7; low, 39, Nov. 21.
Last year—High, 87½; low, 75.

SHOE WHOLESALERS DISCUSS RUBBERS.

THE ninth annual meeting of The Western Association of Shoe Wholesalers was held December 14 at the Grand Pacific Hotel, Chicago. The chief topic of discussion was the rubber footwear situation, which was considered satisfactory as far as terms and discounts were concerned. Jobbers and retailers are carrying large overstocks. The jobbers all expect curtailment in the volume of leather and rubber shoe business this year. E. F. Carpenter, of Chicago, was elected president and C. L. Swarts, of St. Louis, vice president. S. W. Campbell, of Chicago, was reëlected secretary. His address is No. 218 La Salle street.

TRADE NEWS NOTES.

THE United States Rubber Co. have leased the premises at No. 140 Essex street, Boston, for a term of years, to be occupied as their Boston offices after the expiration of their lease of No. 101 Milk street.

The Elkhart Rubber Works (Elkhart, Indiana) are erecting a considerable extension to their plant.

The Western Rubber Co. (Goshen, Indiana) have just closed the most prosperous year in their history. They are distributing an attractive new catalogue of their mechanical rubber goods products.

TRADE NEWS NOTES.

WHY it is that the Arkay Rubber Co. (New York), distributors of pure rubber bands, have chosen the tortoise to represent them is a guess. Not that the brass paperweight in the shape of a tortoise is not attractive, but it suggests a slowness of which the Arkay people know very little. It may be that the tortoise in question is a "snapper," and so are rubber bands.

Harburger & Stack, import and export commission merchants, No. 27 Ferry street, New York, have become incorporated under the laws of New York state, with $200,000 capital, to provide for the continuation of the business since the recent death of Julius Harburger. Richard F. Stack is president, and Edward F. Robertson, who now comes into the business, secretary and treasurer. Harburger & Stack, through their Mexican connections, are considerable importers of crude rubber.

The Marvel Rubber Co. [see THE INDIA RUBBER WORLD September 1, 1906,—page 405], engaged lately in making molded rubber slides in one of the buildings of the National India Rubber Co. (Bristol, Rhode Island), stopped work about the first of December and probably will not resume.

Edgar Watson, for six years manager of the rubber footwear department of the Friedman-Shelby Shoe Co., of St. Louis, has taken the management of the rubber department of F. Mayer Boot and Shoe Co., of Milwaukee. The latter company make a specialty of the "Wales-Goodyear" lines.

The regular quarterly dividend of 1¾ per cent. on the preferred shares of the Rubber Goods Manufacturing Co. was payable on December 16.

The New York Park board has adopted a regulation prohibiting vehicles having rubber tires over which chains are used from running through any parks, or the various drives or roads—such as the Riverside drive—over which the board has control. The organized automobilists of New York and vicinity are protesting strongly against this regulation.

President Dunn, of The Fisk Rubber Co., was quoted on December 22 as saying that their tire factory had been running day and night, and that the employés laid off a few weeks earlier were now working overtime.

Permission has been granted to the receivers for The Pope Manufacturing Co. to continue the manufacturing business for four months from December 28.

A handsome album of views of "The World's Greatest Zinc and Lead District," around Joplin, Missouri, embraces fine pictures of the works of the Picher Lead Co. in that town, the products of which are so widely known in the rubber trade; also views of the residences of three members of the Picher family, who own the works.

The Waste Rubber Co., Limited (London), who have established an office at No. 10 Broadway, New York, in charge of Arthur B. Cooper, have registered the trade mark "Nestor" for their various shredded qualities of waste rubber.

An appreciative rhymester who is evidently a user of Bailey's "Won't Slip" tread tires has written a poem of six stanzas which has been very much quoted. The following is a sample verse:

They are not skidders that *skidoo*,
All roads are pleasure roads to you;
The "Won't Slip" Tread says every lip,
Is rightly named "Won't Slip."

WANTS AND INQUIRIES.

[460] WANTED names of companies who sell wooden soled rubber or leather boots.

[461] "Please give us the address of some manufacturers of improved clothes, suitable for waterproofing, for linings and coverts."

[462] Names and address of manufacturers of firemen's helmets.

[463] Who supplies pontianak and tuno gums?

NEW YORK TO PARIS BY MOTOR.

AN automobile tour from New York to Paris has been projected, under the joint auspices of the New York *Times* and *Le Matin*, of Paris. The route proposed traverses Alaska, to Bering strait, beyond which it is to continue through Siberia into Russia in Europe and thence to Paris. The entrants have in prospect the most severe conditions, long continued, that have yet had to be considered in an automobile tour—extreme cold, great stretches of snow and ice, and long distances without roads. But in spite of these drawbacks a number of entries for the trip have been recorded, and the event is being looked forward to with lively interest by automobilists in America and Europe, and particularly by men experienced in racing affairs.

Naturally many new features of construction have been suggested to automobile manufacturers, but in place will be considered only the special points relating to tires that have been brought out. In this connection, a practical rubber man submits the following to THE INDIA RUBBER WORLD:

"What of the rubber tires? While running there may be friction enough to keep them flexible, but standing over night at 40° or 50° below zero, will they freeze and become brittle? Will it be necessary to furnish them with fur coats to keep the arctic atmosphere from stealing all of their heat? Certain it is that if the rubber be heavily compounded it will freeze and crack. That has been proved in Canada and Russia, where cheap rubber shoe soles become as brittle as glass. By the same record good rubber soles, that is soles made of a rich compound, stand up in any sort of cold. But again this is not an absolute test, for the shoe compound is radically different from the tire compound, and differently cured. This we know, unvulcanized rubber will become as rigid as iron at 20° below zero. Will then the tire that has a sheet of unvulcanized stock between the fabric and the tread freeze and break there, or has enough sulphur been absorbed by it to cure it? Then, too, how about repairs? Rubber in solution is not cured. Will not the cement freeze and let go? And if cured by sulphur chloride on the spot will it stand up as if cured by heat?

"The chances are that the tires will stand up with reasonable care. If it is too cold, as cold as liquid air, which it cannot be, they would be as brittle as glass; that has been proved. At all events no one will watch the tour more carefully than rubber manufacturers, and none be so ready to profit by any knowledge gained. If it is found necessary to invent a low resistance compound for extreme cold, they are as capable of doing it as they were to produce high resistance compounds to resist superheated steam. For a guess the wise motorist will have tires that are as nearly pure gum as is consistent with toughness, and flexible leather covers well studded with antiskids for rough and icy places."

Meanwhile some experiments have been made by Mr. David Hays, manager of the Healy Leather Tire Co. (New York), to determine the effect of severe cold upon rubber tires. The experiments were made in the factory of the Liquid Carbonic Co. (New York), who make a business of compressing carbonic acid into tanks for inflating tires in garages. Ordinary pressure in the tanks is not sufficient to produce a marked degree of cold as the gas enters the tire. To produce excessive cold, gas under enormous pressure was allowed to escape into the atmosphere, the expansion drawing heat from the gas and causing part of it to solidify, the solidified gas or "carbonic snow" having a temperature of about 108° below zero.

A glass vessel containing alcohol was packed with this carbonic snow, the temperature of the alcohol slowly going down. Then strips of vulcanized rubber—taken from tire tubes, for instance—were cut up, doubled over, and held in a little clip, which could be instantly removed. When the rubber was warm it would spring back instantly into its flattened shape. These samples of rubber were then placed in the cold alcohol, and as the temperature dropped well below zero the rubber began to lose its elasticity. Between 30° and 40° below zero its action was quite sluggish, and when the clip was removed after the sample had been subjected to the cold for a short time the rubber straightened out very slowly. By reducing the temperature to between 40° and 50° below zero the rubber was found to harden in the position in which it was held by the clip, and when this was removed the rubber remained in its doubled-up position for some time, gradually unbending as the heat from the atmosphere warmed it.

It was also shown by the experiment that the purer the rubber, that is to say, the less amount of compounding with other materials, the better its ability to withstand extreme cold. For a pneumatic tire, however, it is impracticable to use pure Pará rubber and sulphur on the tread, the reason being that it would be too tender and unable to give service on the road. Another test made was to insert a piece of rubber into the frozen carbonic acid, and it was found that, after being left there for a minute or two, it had frozen solid and under the blow of a hammer it was shattered like vulcanite.

On the other hand, a piece of leather such as is used for auto tires was placed in this extremely cold substance for a considerable time, and when removed showed absolutely no change, being as pliable before as after.

Many motorists believe that it will be impossible to use pneumatic tires over a large part of the New York-Paris route, for which reason a detachable steel rim has been devised, taking the place of a pneumatic tire. This steel run or tire is to be fitted with steel spikes for use for travel over ice or in exceptionally rough and rocky places. Still another suggestion is that graphite may be used instead of lubricating oil, on account of the liability of the latter to freeze.

DEATH OF LORD KELVIN.

THE Right Hon. Lord Kelvin (Sir William Thomson), who probably had contributed more to the development of physical science than any other one individual, and who was one of the most remarkable men his race has produced, died at Glasgow on December 17, in his eighty-fourth year, and was buried on December 23, in the nave of Westminster Abbey, with the highest honors in the power of the British people and government to confer. The son of a professor of mathematics, young William Thomson soon distinguished himself in this branch of science. He entered the University of Glasgow at the age of ten as a student, and at his death he was chancellor of the university, his connection with the institution, in some form, having been almost continuous meanwhile. He was particularly distinguished by the results of his researches in the electrical field, and was knighted by Queen Victoria in recognition of his work in connection with the first successful Atlantic cable. His elevation to the peerage likewise was an honor conferred on account of his contributions to electrical and engineering science. Lord Kelvin paid several visits to America, one of them being in connection with the electrical development of Niagara Falls.

Rubber Scrap Market.

THERE have been so few transactions in rubber scrap for the past few weeks that the market is practically without quotations. The reclaiming mills have been working on a reduced scale, and dealers in scrap report that there is actually no inquiry. In the circumstances it would appear not to be worth while to attempt to state any prices. It might be mentioned that a few sales of domestic old shoes have been reported in the neighborhood of 8 cents for carload lots, but this affords no guide to what prices may be when the market becomes active again.

INDIA RUBBER MISCELLANY.

IDENTIFICATION OF PLANTATION RUBBER.

A RESOLUTION passed by The India Rubber Manufacturers' Association, of Great Britain, instructed their secretary to write to the governors of Ceylon and the Straits Settlements, "asking them to cause it to be known that English manufacturers recommend planters to register trade marks for their various brands of rubber, in order to facilitate the identification of these brands, and point out that this would assist planters growing the best rubber to obtain enhanced prices." The two governors, in acknowledging the communication, promised to give publicity to the request. While planters have not registered trade names as yet, the plantation rubber from the Far East offered at the London auctions is, as a rule, accompanied by the names of the estates producing it, or of the proprietary companies, so that manufacturers who care to do so may learn the exact source of any plantation rubber they purchase.

THE NICARAGUA RUBBER PROSPECT.

THE Bluefields *American* reports: "The rubber planting industry in the section of Pearl Lagoon, which received such a drawback by the late hurricane [See THE INDIA RUBBER WORLD, January 1, 1907—page 113.] is being steadily pushed by the renewed ambition, energy and confidence of the planters engaged in the business. They were for a time crippled, but not killed nor conquered and the damages referred to have had, in effect, a tendency of stimulating their efforts with a view of realizing the success which the industry must produce within a short period of years."

The United States consul at Bluefields reports that where rubber trees (*Castilloa*) were blown down, but not uprooted, they are spouting freely, so many shoots having come up that the original number of trees is not likely to be lessened.

USES FOR PLANTATION RUBBER.

REFERRING to a published intimation that plantation rubber finds only a limited number of uses, a London importer on an extensive scale informs a *Times of Ceylon* correspondent that such has not been his observation. He says that to his knowledge plantation rubber is being used for inner tubes and is being experimented with in tires. "There is no doubt," the correspondent writes, "that as shipments become large, plantation rubber is attracting the more general attention of the trade. I heard the other day of a large manufacturer who has been experimenting for some time with samples sent him by a produce broker, and he has now decided to become a regular buyer. It is thought that, when he comes upon the market in earnest, it will make an appreciable difference in quotations."

RUBBER IN LIBERIA.

THE British consul at Monrovia reports the existence of much rubber in Liberia, and that its collection is becoming increasingly popular among the natives. One man can gather as much as 3 pounds a day, for which he is paid a shilling a pound. This is better than any other wages paid, and the work is comparatively easy. According to the consul, the agreement now existing between the government of Liberia and the Liberian Rubber Corporation is that the latter shall pay a royalty of 4*d*. per pound [= $8.11, gold, per 100 pounds] upon all rubber exported from the country. Any one may collect rubber by gaining the consent of the corporation and paying to it 4*d*. per pound for all rubber collected. The company has advanced to the government £100,000 to aid in developing the country.

RUBBER IN NIGERIA.

IN connection with the rubber situation in Nigeria, the colonial administration is severely criticized in the London *Daily Mail* by Frank E. Verney. In December, 1901, and later, proclamations were issued, prohibiting the gathering of wild rubber without a license. Not only was this restriction distasteful to the natives, who considered it in the light of having to pay for what was theirs already, but the local officials are charged with lack of tact in dealing with the natives, thus unnecessarily causing friction. It is asserted that many natives bound for the first time of the restrictive laws when on their way to market, through the seizure of their rubber as contraband, and the result has been to discourage the collection of rubber. Furthermore, the forestry department is accused of advocating to the natives a method of tapping the rubber tree (*Funtumia elastica*), which has proved extremely harmful and threatens the extinction of the species.

PLANTING STILL ACTIVE IN THE EAST.

IN spite of the large area already planted to rubber in Ceylon and the Malay States, the perusal of recent reports of the various companies in this interest would indicate no lessening of activity in planting. Taking at random the reports of twenty companies lately published it appears that they have standing a total of 14,589 acres in rubber, of which 7,837 acres were planted during the year last closed, and 3,527 acres in the preceding year, while almost without exception extensive planting is planned for 1908. The various companies seem likely to plant this year as much if not more than last year, and a similar condition seems to prevail throughout the planting districts. At the last meeting of the Kalutara District Planters' Association it was stated that 6,038 acres were planted to rubber in the district in 1905, and 14,178 acres in 1906. The rubber production in the district was 161,978 pounds in 1905, and 195,766 in 1906. The estimated production this year is 253,770 pounds.

A FRENCH AUTOMOBILE FACTORY.

THE extensive automobile factories of A. Darracq & Cie., Limited, at Suresnes, a suburb of Paris, covering an area of over 60,000 square meters [= 15 acres] and employing 3,000 workers, are now producing at the rate of 10,000 cars a year—of all kinds, from the *voiturelle* of 6 H.P. to the powerful eight-cylinder racing monster. Darracq is on the list of competitors for the concession for all the motor 'buses in the municipality of Paris, and has lately concluded with a group of London financiers a contract for the supply of 20,000 motor cabs, to be delivered within ten years.

BUSINESS OPPORTUNITIES IN PERU.

WRITING on this subject from Iquitos the United States consul, Mr. Eberhard, says: "Iquitos's prospects for continued success and advancement may be said to be based absolutely upon the rubber industry. It is true that the forests are wonderfully rich in cacao, hard woods, and trees and herbs of medicinal qualities, etc., yet it will be many years, if ever, before these articles can be exported in quantities to be of any great commercial importance to the town. It seems certain that they can never become so greatly in demand as rubber."

RUBBER ESTATE REQUIREMENTS.

THE advertisements of a leading business house at Kuala Lumpur (Federated Malay States) in a local newspaper mentions the following as desirable for equipping a rubber plantation:

Tajahs	Barbed Wire	Cross-cut saws
Pengalis	Wire Netting	Hand Saws
Bill Hooks	Rubber Knives	Rubber Trays
Changkols	Farrier Knives	Rubber Sprouts
Parangs	Pruning Knives	Pickaxes
Assam Forks	Rain Gauges	Rakes
Scythes (Elephant)	Nails	Iron Safes
American Axes	Rubber Cups	Boiled Rice

A GENERAL meeting of the shareholders of the Compania Guayulera Mexicana, S. A., was held on October 31 at the company's offices, in the city of Mexico, Calle de San Fernando No. 41. The report of the council of administration was approved and vacancies in the council filled.

The Continental Rubber Co., according to *The Mexican Herald*, have been adding an important amount of machinery to their plant at Torreon, thus largely increasing its capacity.

GROWING INSULATED WIRE TRADE.

THE sentiment of the rubber insulated wire trade is that a steady growth is to be expected. While the recent financial stringency doubtless has interrupted the projecting of new building enterprises, a vast amount of building already planned is being carried on without interruption, and a return of activity in new planning is looked for in the near future. The point is that modern city buildings call for a great deal of electrical wiring, and to-day this is nearly all rubber insulated. Single buildings in course of erection in New York will require from $100,000 to $200,000 worth of electric wires—for lighting, for telephones, for messenger services, and so on—all services which have been introduced within a generation.

The electrification of railways everywhere has promoted the demand for insulated wires, and modern steamers require large amounts. On war ships nowadays everything except their actual propulsion is done by means of electricity, and calls for insulated wires—practically all rubber insulated. Like everything else, insulated wires must be replaced periodically, and a leading electrical engineer points out that the amount of electrical equipment now installed for various purposes is so great that the necessary replacements alone will call for enough insulated wire to prevent the industry from ever becoming really "dull" again.

For some time past most of the rubber insulated wire factories in the United States have been run overtime—some of them double time. The most that has resulted from the recent business trouble has been to reduce the activity to normal working hours. The reduced cost of materials is expected to stimulate the business. In July last the "base price" for bare copper wire was 23 cents per pound, and about the middle of October it had fallen to 15 cents. There has been a slight advance since, recent quotations being about 16½ cents a pound.

"There was a time, not so many years ago," said a member of the insulated wire trade, "when many people actually were afraid to use rubber insulated wires. In every case of fire the cause of which was in any way obscure, it was set down as 'defective insulation,' until the fire underwriters in a single year estimated that $100,000,000 damage had been caused by fires from this source. The insulated wire people and the electrical engineers then began to get busy, with the result that systematic inspection of wires was adopted, and better methods of installation. It is now possible, in a great number of cases, to prove positively whether a given fire resulted from defective insulation, and one seldom hears this cited as the cause of a fire. Moreover, under the system of marking each manufacturer's output of wire specifically, it is possible in every case to know the source of the wire, whether it is at fault in causing a fire or otherwise. The general result, therefore, has been to render rubber insulation more popular than ever, and for many purposes it is the only wire insulation that will be accepted by the fire underwriters. For in addition to its positive good qualities, the old fear of rubber insulation has disappeared."

ASBESTOS NOTES.

THE Asbestos Products Co., of Hartford, have been incorporated under the Connecticut laws, with $50,000 capital, to mine asbestos in that state or elsewhere, and to use the same in manufacturing. Henry E. Chapman is president and treasurer, Frank J. Betts vice-president, and George O. Brett secretary—all of Hartford, Conn.

The United States Asbestos Co., organized last year by parties at Burlington, Vermont, to mine asbestos at Eden, in that state, have begun the erection of a refining plant, to handle 200 tons of rock daily.

A good business is reported to have been done among the thrifty class of some localities in the sale of "fireproof" boxes, alleged to be of asbestos, for the safekeeping of valuable papers. In nearly every neighborhood, some purchaser, yielding to curiosity, has tested his purchase in the fire, with the result that his box has been of little further use.

LONDON CABS.—There appears to be a falling off in the number of horse drawn cabs on London streets. The number of such vehicles licensed during the year ended May 31, 1906, was 10,792, while during the year ended May 31, 1907, only 10,251 were licensed. Meanwhile the number of licensed motor cabs increased from 53 to 284. No doubt the business done by the motor 'buses, carrying in the aggregate millions of passengers, has brought about a lessened demand for cabs.

Review of the Crude Rubber Market.

THE condition of dullness which characterized the market at the date of our latest report has continued during the month, assuming meanwhile, if possible, a degree more pronounced. The reasons then recited for the interruption to the demand from manufacturers still have their weight, and buying for current needs has almost come to a standstill. Added to this is the custom of stock taking at the end of the calendar year, when manufacturers avoid having on hand a surplus of raw materials.

The general outlook for business, however, is more hopeful than was the case a month ago, as indicated in other columns of this issue. While buying manufactured products in all lines continues on a reduced scale, this condition cannot last indefinitely; indeed, from many parts of the country signs of improvement are reported already. But until existing stocks of goods are worked off the consumption of raw materials is likely to be confined to meeting actual current demands, for rubber manufactures as well as in all other lines. For the present, therefore, the crude rubber market remains unchanged, and what the future of prices is to be can be determined only after a more general renewal of business activity.

The Pará crop so far is slightly smaller than for the same months in several former years, those these figures have little bearing upon the general situation. In other words, the quantity arrived by the middle of the season forms no basis for estimating the total production for a year. During the last half of the 1905-06 season, after arrivals had been normal for six months, the quantity reaching Pará exceeded by 3485 tons the receipts for the corresponding period one year before. It may be that this year the lower prices that have prevailed for some months may curtail production, though usually operations in the field are not so quickly affected by the prices in consuming markets.

Arrivals at Pará of rubber of all grades(including caucho) for the first half of several crop years—July 1 to December 31 inclusive—have been as follows, in tons:

	1904.	1905.	1906.	1907.
July	1,250	1,450	1,840	1,370
August	1,260	1,300	1,690	1,500
September	1,780	2,200	2,070	2,410
October	2,820	3,580	3,030	3,200
November	2,800	2,890	3,480	3,200
December	3,390	3,270	2,610	a1,095
Total	14,300	14,690	14,720	12,775

[a—To December 18, 1907.]

At the Antwerp auction, on December 13, of 232 tons of rubber exposed, only 130 tons found buyers, at lower prices, the decline in some cases amounting to 85 centimes per kilogram [=about 7½ cents per pound].

Following are the quotations at New York for Pará grades one year ago, one month ago, and December 30—the current date:

PARA.	Jan. 1, '07.	Dec. 1, '07.	Dec. 30.
Islands, fine, new	118 @119	72@73	76@77
Islands, fine, old	none here	none here	none here
Upriver, fine, new	123 @124	83@84	82@83
Upriver, fine, old	127 @128	86@87	84@85
Islands, coarse, new	71½@ 72	44@45	50@51
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	97 @ 98	66@67	65@66
Upriver, coarse, old	none here	none here	none here
Caucho (Peruvian), sheet	76 @ 77	56@57	56@57
Caucho (Peruvian), ball	95½@ 96	66@67	65@66
Ceylon (Plantation), fine sheet	137 @138	93@94	95@96

AFRICAN.

Sierra Leone, 1st quality	77@78	Lopori ball, prime	75@76
Massai, red	77@78	Lopori strip, prime	72@73
Benguella	55@56	Madagascar, pinky	64@65
Accra flake	12@13	Ikelemba	none here
Cameroon ball	59@60	Soudan niggers	72@73

CENTRALS.

Esmeralda, sausage	60@61	Mexican, scrap	60@61
Guayaquil, strip	50@51	Mexican, slab	46@47
Nicaragua, scrap	60@61	Mangabeira, sheet	44@45
Panama	48@49	Guayule	32@33

EAST INDIAN.

Assam	75@76	Borneo	33@34

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	3$500	Upriver, fine	4$500
Islands, coarse	2$200	Upriver, coarse	3$100
		Exchange	15¼*d.*

Latest Manàos advices:

Upriver, fine	4$500	Exchange	15 7/32*d.*
Upriver, coarse	2$500		

NEW YORK PRICES FOR OCTOBER (NEW RUBBER.)

	1907.	1906.	1905.
Upriver, fine	.98@1.06	1.22@1.24	1.22@1.30
Upriver, coarse	.84@ .88	.93@ .96	.89@ .93
Islands, fine	.91@ .99	1.19@1.21	1.19@1.27
Islands, coarse	.56@ .59	.68@ .73	.69@ .71
Cametà	.55@ .62	.69@ .72	.70@ .72

NEW YORK RUBBER PRICES FOR NOVEMBER (NEW RUBBER).

	1907.	1906.	1905.
Upriver, fine	.83 @ .99	1.22 @1.24	1.21 @1.24
Upriver, coarse	.68 @ .85	.95 @ .97	.89 @ .91
Islands, fine	.72 @ .92	1.18 @1.20	1.18 @1.21
Islands, coarse	.44 @ .56	.71 @ .73	.68 @ .72
Cametá	.42 @ .56	.70 @ .71	.69 @ .72

Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total 1907.	Total 1906.	Total 1905.
Stocks, October 31.....*Tons*	119	51 =	170	125	227
Arrivals, November	1018	313 =	1331	1556	1281
Aggregating	1137	364 =	1501	1681	1508
Deliveries, November	1067	299 =	1366	1583	1354
Stock, November 30	70	65 =	135	98	154

	PARA.			ENGLAND.		
	1907.	1906.	1905.	1907.	1906.	1905.
Stocks, October 31. *Tons*	417	140	155	595	500	310
Arrivals, November	2945	3065	2725	1411	803	1270
Aggregating	3362	3205	2880	2006	1303	1580
Deliveries, November	3222	2345	2485	1366	923	1075
Stocks, November 30.	140	860	395	640	380	505

	1907.	1906.	1905.
World's visible supply, November 30...*Tons*	2796	2772	2334
Pará receipts, July 1 to November 30	10615	10845	10610
Pará receipts of Caucho, same dates	1075	1110	770
Afloat from Pará to United States, Nov. 30.	893	604	443
Afloat from Pará to Europe, Nov. 30	988	830	837

Rubber from the Far East.

EXPORTS of plantation rubber from the Straits Settlements and Malay States from January 1 to October 31, inclusive (in pounds), were destined as follows:

Great Britain	1,204,534	Australia	21,581
Europe	133,200	Ceylon	183,556
United States	4,134		
Japan	13,059	Total	1,530,064

[From Singapore, 1,134,996 pounds; from Penang, 395,068.]

Total exports from the above region for the last two completed years were:

	1905.	1906.
From Singapore	180,533	719,135
From Penang	48,267	98,636
Total	228,800	817,771

Exports of plantation rubber from Ceylon from January 1 to October 28 were officially stated on that date as follows:

Great Britain	250,116	India	112
Belgium	3,387	Australia	8,565
France	1,234	United States	123,595
Germany	14,675		
Holland	151	Total	401,835

[This total was later corrected to 394,643 pounds, by subtracting rubber not actually the produce of Ceylon.]

Complete exports of Ceylon plantation rubber in former years: 41,684 pounds in 1903; 72,040 pounds in 1904; 168,247 pounds in 1905; 327,024 pounds in 1906.

A later report from Ceylon shows exports of 432,638 pounds to November 21.

Should the shipments for the remainder of 1907 have continued at the same rate as above, the Straits will show a total of 1,836,077 pounds and Ceylon 489,060, or a total of 2,325,137 pounds, against 1,144,795 pounds in 1906.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

NOVEMBER 25.—By the steamer *Dominic*, from Manàos and Pará:

IMPORTER.	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	199,700	87,900	77,600	..... =	365,200
New York Commercial Co..	166,300	51,900	50,000	25,300 =	293,500
A. T. Morse & Co.	162,600	36,000	65,200	800 =	264,600
General Rubber Co.	92,400	16,900	58,400	8,100 =	175,800
C. P. dos Santos	11,400	5,000	20,500	1,300 =	38,200
Hagemeyer & Brunn	6,400	.....	700	..... =	7,100
Total	638,800	197,700	272,400	35,500 =	1,144,400

DECEMBER 3.—By the steamer *Obidense*, from Manàos and Pará:

A. T. Morse & Co.	254,900	48,200	98,900	200 =	402,200
Poel & Arnold	110,900	29,400	51,100	300 =	191,700
New York Commercial	82,500	8,900	50,309	..... =	141,700
General Rubber Co.	85,000	12,800	38,400	..... =	136,200
G. Amsinck & Co.	14,500	7,500	2,900	..... =	24,900
C. P. dos Santos	.....	.....	35,000	..... =	35,000
Edmund Reeks & Co.	.....	.....	4,600	..... =	4,600
Total	547,800	106,800	281,200	500 =	936,300

DECEMBER 14.—By the steamer *Maranhense*, from Manàos and Pará:

A. T. Morse & Co.	311,000	49,700	59,600	2,000 =	422,300
Poel & Arnold	150,500	11,500	52,600	10,500 =	225,100
General Rubber Co.	71,900	14,700	49,600	100 =	136,300
New York Commercial Co..	57,500	11,100	8,800	..... =	87,400
C. P. dos Santos	18,900	1,100	9,200	..... =	29,200
G. Amsinck & Co.	7,700	1,900	400	..... =	10,000
Edmund Reeks & Co.	3,500	.....	.....	..... =	3,500
Total	621,000	90,000	190,200	12,600 =	913,800

DECEMBER 24.—By the steamer *Boniface*, from Manàos and Pará:

A. T. Morse & Co.	65,500	19,200	55,100	3,600 =	143,300
C. P. Santos	70,500	13,400	23,500	300 =	107,700
General Rubber Co.	54,400	15,100	31,100	..... =	100,600
New York Commercial Co..	37,600	8,600	16,700	300 =	53,200
Poel & Arnold	5,700	11,300	3,900	600 =	21,500
Hagemeyer & Brunn	14,700	.....	.....	..... =	14,700
Total	248,500	67,600	130,300	4,800 =	451,200

PARA RUBBER VIA EUROPE.

		POUNDS.
Nov. 23.—By the *Mauretania*=Liverpool:		
A. T. Morse & Co. (Coarse)		9,000
Nov. 23.—By the *Savoie*=Havre:		
A. T. Morse & Co. (Caucho)		35,000
Dec. 2.—By the *Lincoln*=Hamburg:		
General Rubber Co. (Fine)		14,500
Dec. 2.—By the *Hudson*=Havre:		
A. T. Morse & Co. (Coarse)		11,500
Dec. 9.—By the *Lusitania*=Liverpool:		
New York Commercial Co. (Fine)	11,500	
A. T. Morse & Co. (Fine)	5,500	
W. L. Gough & Co. (Coarse)	2,500	19,500
Dec. 11.—By the *Chilea*=Mollendo:		
New York Commercial Co. (Fine)	7,000	
W. R. Grace & Co. (Caucho)	9,000	16,000
Dec. 12.—By the *Ucayali*=Iquitios:		
Edmund Reeks & Co. (Fine)	14,000	
Edmund Reeks & Co. (Coarse)	6,000	20,000
Dec. 16.—By the *Lucania*=Liverpool:		
Poel & Arnold (Fine)		22,500
Dec. 16.—By the *Pennsylvania*=Hamburg:		
General Rubber Co. (Coarse)		7,000
Dec. 21.—By the *Baltic*=Liverpool:		
Poel & Arnold (Fine	45,000	
W. L. Gough Co. (Coarse)	4,500	49,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

		POUNDS.
Nov. 23.—By the *Monterey*=Frontera:		
E. Steiger & Co.	5,000	
Harburger & Stack	2,000	
A. Norden & Co.	1,500	
E. N. Tibbals Co.	500	
H. Marquardt & Co.	500	9,500
Nov. 25.—By the *Advance*=Colon:		
Hirzel, Feltman & Co.	20,000	
Roldau & Van Sickle	4,000	
Dumarest Bros. Co.	3,000	
A. Santos & Co.	3,000	
L. Johnson & Co.	2,000	
Laurence & Turnure	1,500	
Andreas & Co.	1,500	
G. Amsinck & Co.	1,500	36,500
Nov. 25.—By the *Tennyson*=Bahia:		
Poel & Arnold	22,500	
General Rubber Co.	7,000	29,500
Nov. 27.—By the *Ceinfugoes*=Tampico:		
New York Commercial Co.	*45,000	
Edward Maurer	*35,000	
Poel & Arnold	*22,500	
European account	*45,000	147,500
Nov. 29.—By the *Siberia*=Colombian ports:		
G. Amsinck & Co.	7,000	
Schulte & Goschen	3,000	
H. W. Peabody & Co.	1,500	
Escobar & Gorgorza	1,000	
Isaac Brandon & Bros.	1,000	13,500
Nov. 30.—By the *Panama*=Colon:		
G. Amsinck & Co.	10,000	
Piza, Nephews Co.	3,000	
Henry Mann & Co.	2,000	
Isaac Brandon & Bros.	1,500	
Eggers & Heinlein	1,000	17,500
Dec. 3.—By the *Venetia*=Colon:		
Hirzel, Feltman & Co.	3,500	
Schulte & Goschen	3,000	
Kunhardt & Co.	500	7,000
Dec. 4.—By the *El Sud*=New Orleans:		
A. T. Morse & Co.	3,500	
A. N. Rotholz	1,500	
Eggers & Heinlein	1,000	6,000
Dec. 5.—By the *Dunottar*=Colon:		
G. Amsinck & Co.	3,500	
Isaac Brandon & Bros.	2,000	
American Trading Co.	1,500	
Aramburu Incorporated	1,500	8,500
Dec. 7.—By the *Morro Castle*=Frontera:		
H. Marquardt & Co.	3,500	
Harburger & Stack	2,500	
American Trading Co.	1,300	
E. Steiger & Co.	500	8,000
Dec. 9.—By the *Zulia*=Maracaibo:		
R. de Gallego Co.	2,500	
Suzarte & Whitney	1,500	4,000
Dec. 9.—By the *Washington*=Tampico:		
Edward Maurer	*90,000	
Continental-Mexican Rubber Co..	*55,000	
New York Commercial Co.	*34,000	
J. A. Kendall	*1,500	194,000
Dec. 11.—By the *Finance*=Colon:		
G. Amsinck & Co.	24,000	
Dumarest Bros. Co.	6,000	
Hirzel, Feltman & Co.	5,000	
Roldau & Van Sickle	2,500	
W. R. Grace & Co.	2,000	
Meeker & Co.	2,000	
A. Rosenthal Sons	1,000	
Aramburu Incorporated	1,000	43,500
Dec. 13.—By the *Antilla*=New Orleans:		
Eggers & Heinlein	2,500	
Manhattan Rubber Mfg. Co.	1,000	
H. W. Peabody & Co.	1,000	4,500
Dec. 13.—By the *Valdivia*=Colombia ports:		
G. Amsinck & Co.	4,500	
Schulte & Goschen	1,500	
M. Blancho	1,000	
A. Held	1,000	
Kunhardt & Co.	500	
Pedro A. Lopez	500	9,000
Dec. 14.—By the *Mexico*=Frontera:		
Harburger & Stack	7,500	
E. Steiger & Co.	1,000	
H. Marquardt & Co.	2,500	11,000
Dec. 14.—By the *Santiago*=Tampico:		
Edward Maurer	*125,000	
New York Commercial Co.	*55,000	180,000
Dec. 16.—By the *Carib II*=Honduras:		
Eggers & Heinlein	5,500	
H. W. Peabody & Co.	1,000	
Bartling & De Leon	1,000	7,500
Dec. 16.—By the *Altai*=Colon:		
West Coast Rubber Co.	2,000	
G. Amsinck & Co.	2,000	
Suzarte & Whitney	500	4,500
Dec. 16.—By the *Tintoretto*=Bahia:		
A. Hirsch & Co.	11,500	
J. H. Rossback & Bros.	2,500	14,000
Dec. 21.—By the *El Paso*=Galveston:		
Continental-Mexican Rubber Co..	45,000	
Edward Maurer	25,000	
E. Steiger & Co.	9,000	79,000

*This sign, in connection with imports of Centrals, denotes Guayule rubber.

AFRICANS.

Nov. 21.—By the *Patricia*=Hamburg:		
Rubber Trading Co.	9,000	
General Rubber Co.	4,500	13,500
Nov. 25.—By the *Victoria*=Hamburg:		
A. T. Morse & Co.		22,500
Nov. 29.—By the *Merion*—Antwerp:		
A. T. Morse & Co.	90,000	
Robinson & Stiles	6,500	
Joseph Cantor	4,500	
Raw Products Co.	3,500	104,500
Dec. 2.—By the *Cedric*=Liverpool:		
Poel & Arnold	22,500	
Raw Products Co.	4,500	27,000
Dec. 2.—By the *Lincoln*=Hamburg:		
General Rubber Co.		9,000
Dec. 2.—By the *Carmania*=Liverpool:		
A. T. Morse & Co.		7,000
Dec. 5.—By the *Cevic*=Liverpool:		
General Rubber Co.	125,000	
A. T. Morse & Co.	4,500	129,500
Dec. 9.—By the *Amerika*=Hamburg:		
General Rubber Co.		11,500
Dec. 9.—By the *Lusitania*=Liverpool:		
Poel & Arnold		5,500
Dec. 9.—By the *Touraine*=Havre:		
Robinson & Stiles		5,500
Dec. 10.—By the *Erika*=Lisbon:		
General Rubber Co.		67,000
Dec. 13.—By the *Samland*=Antwerp:		
Joseph Cantor		6,000
Dec. 16.—By the *Arabic*=Liverpool:		
A. T. Morse & Co.		11,500
Dec. 16.—By the *Pennsylvania*=Hamburg:		
A. T. Morse & Co.	11,500	
W. L. Gough Co.	11,500	23,000
Dec. 16.—By the *Lucania*=Liverpool:		
George A. Alden & Co.	18,000	
Poel & Arnold	11,500	
General Rubber Co.	9,000	38,500
Dec. 16.—By the *St. Paul*=Havre:		
Livesey & Co.		11,500
Dec. 21.—By the *Florida*=Havre:		
Poel & Arnold		22,500
Dec. 21.—By the *Baltic*=Liverpool:		
Poel & Arnold	7,000	
A. T. Morse & Co.	6,500	
George A. Alden & Co.	4,500	18,000

EAST INDIAN.

		POUNDS.
Nov. 25.—By the *Minneapolis*=London:		
A. T. Morse & Co.	*7,000	
George A. Alden & Co.	*2,000	
General Rubber Co.	*1,000	*10,000
Dec. 2.—By the *Adriatic*=London:		
General Rubber Co.	*4,500	
Poel & Arnold	*1,000	*5,500
Dec. 2.—By the *Hudson*=Singapore:		
Poel & Arnold		22,500
Dec. 3.—By the *Drachenfels*=Colombo:		
A. T. Morse & Co.		*20,000
Dec. 7.—By the *Ghazee*=Singapore:		
George A. Alden & Co.	25,000	
Poel & Arnold	15,000	
H. Pauli & Co.	5,500	
Raw Products Co.	5,000	
M. Joachimson	5,000	
W. L. Gough & Co.	4,500	60,000
Dec. 9.—By the *Philadelphia*=London:		
A. T. Morse & Co.	*3,500	
General Rubber Co.	3,500	7,000

*Denotes Plantation Rubber.

GUTTA-JELUTONG.

Dec. 2.—By the *Hudson*=Singapore:		
M. Joachimson	265,000	
George A. Alden & Co.	210,000	
Heabler & Co.	155,000	
W. L. Gough Co.	100,000	
J. W. Phyfe & Co.	55,000	785,000
Dec. 7.—By the *Ghazee*=Singapore:		
Heabler & Co.	425,000	
M. Joachimson	315,000	
L. C. Hopkins Co.	225,000	
George A. Alden & Co.	95,000	
W. L. Gough Co.	70,000	1,130,000

GUTTA-PERCHA.

	POUNDS.
Nov. 25.—By the *Victoria*=Hamburg:	
R. Soltau Co.	7,000
Dec. 2.—By the *Hudson*=Singapore:	
H. Pauli & Co.	25,000
Dec. 7.—By the *Ghazee*=Singapore:	
H. Pauli & Co.	34,000
Dec. 16.—By the *Pennsylvania*=Hamburg:	
R. Soltau Co.	11,500

BALATA.

Dec. 2.—By the *Maraval*=Ciudad Bolivar:	
Kunhardt & Co.	11,500
Dec. 16.—By the *Mersey*=San Blas:	
Bartling & De Leon	11,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—NOVEMBER.

Imports:	Pounds.	Value.
India-rubber	5,122,931	$3,468,483
Balata	40,219	17,349
Gutta-percha	16,550	8,817
Gutta-jelutong	1,981,913	72,231
Total	7,161,613	$3,566,880
Exports:		
India-rubber	16,550	$8,817
Reclaimed rubber	3,425	632
Rubber Scrap Imported	1,157,447	$117,760
Total	7,161,613	$3,566,880

INDIA RUBBER WORLD

Vol. 37. JANUARY 1, 1908. No. 4.

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Liverpool:

EDMUND SCHLUTER & Co. report [November 30]:

The history of rubber knows of no decline to compare with one of the present year, which commenced with quotations of 5*s.* 2½*d.* for hard fine and 4*s.* 1*d.* for caucho ball. When prices fell to 4*s.* 5*d.* and 3*s.* 5*d.* during the summer the trade did not expect the subsequent rise to 4*s.* 10½*d.*, but there was certainly no belief in a decline to 4*s.*, or less. It must therefore be assumed as certain that the decline during October-November was due chiefly to the disturbance in the money market and the severe curtailment of credits. Even so it would probably not have gone so far if the trade had not now made up its mind to expect general retrenchment in business during 1908. With no crop shortage in Brazil and elsewhere it would in these circumstances be easily possible that demand should fall short of supplies, and thus the decline be resumed or at any rate the lower range of prices become permanent.

In the meantime fluctuations after so severe a fall as we have had are more than probable. A further element of uncertainty remains—the American demand which is so largely influenced by weather conditions in the United States during the next few months.

THE WORLD'S VISIBLE SUPPLY OF PARA, NOVEMBER 30.

	1907.	1906.	1905.	1904.	1903.	1902.
Tons	3908	3116	2738	2224	2900	3167
Prices, hard fine	3/6	5/2	5/3	5/5½	4/-	3/4½

LIVERPOOL STOCKS OF AFRICAN RUBBER, NOVEMBER 30.

1907.....282	1904.....443	1901.....648
1906.....328	1903.....198	1900.....802
1905.....307	1902.....473	1899.....533

Rubber Receipts at Manaos.

DURING October and four months of the crop season (including caucho), reported by J. H. Andresen, Sucrs.

	—OCTOBER.—			—JULY-OCTOBER.—		
FROM—	1907.	1906.	1905.	1907.	1906.	1905.
Rio Purús ...*tons*	1073	596	704	2504	1702	2041
Rio Juruá ...	204	249	319	544	592	698
Rio Madeira ...	225	273	214	1080	1237	1010
Rio Solimoes ...	535	321	317	1222	887	775
Rio Negro ...	2	8	6	4	15	10
From Iquitos ...	249	275	293	514	645	768
Total ...	2288	1722	1853	5868	5078	5302

Antwerp.

ANTWERP RUBBER STATISTICS FOR NOVEMBER.

DETAILS.	1907.	1906.	1905.	1904.	1903.
Stocks, Oct. 31..*kilos*	723,816	621,081	554,483	710,860	876,637
Arrivals in November	532,612	373,370	624,385	336,701	361,895
Congo sorts ...	499,441	311,315	462,907	267,778	303,453
Other sorts ...	33,171	62,055	161,478	68,923	58,442
Aggregating ...	1,256,428	994,451	1,178,868	1,047,561	1,238,532
Sales in November...	241,146	279,532	543,572	435,835	558,390
Stocks, November 30..	1,015,282	714,919	635,296	611,726	680,142
Arrivals since Jan. 1.	4,834,929	5,135,602	5,239,553	5,182,012	5,088,325
Congo sorts ...	4,156,141	4,014,059	4,006,203	4,263,232	4,580,456
Other sorts ...	678,788	1,121,543	1,233,350	918,780	507,869
Sales since Jan. 1	4,477,831	5,155,870	5,145,618	5,181,186	5,066,288

Plantation Rubber.

STATISTICS OF PRODUCTION.

	1907.	1906.
Selangor Rubber Co.:		
January-June, inclusive.....*pounds*	47,303	
January-September, inclusive ...	83,239	47,776
Blackwater Estate (Klang):		
January-June, inclusive ...	10,167	
Shelford Rubber Estate:		
January-July, inclusive (about) ...	5,525	2,939
Perak Rubber Plantations:		
April-September, inclusive ...	12,750	7,120
Federated Malay States Rubber:		
Year ended May 31 ...	32,175	13,222½
Kepitigalla Rubber Estates:		
April-October, inclusive ...	21,785	13,341
Vallambrosa Rubber Co.:		
November ...	19,890	15,062
April-November, inclusive ...	144,584	84,392

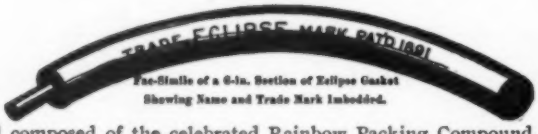
THE wearing of shoes is not universal among the natives of the mountain districts of India, but some rubber shoes find their way there. The United States consul general at Calcutta reports: "The rubber shoes with cloth top made in Austria were fairly well made and cheap for the price; but the whole stock was crude and cheap, not only in price but in quality. The average native is too poor to buy anything but the very cheapest; hence the bulk of the native dealer's stock is made up of shoes that the American laborer would not look at except through curiosity."

AT the fourth annual meeting of the British Vacuum Cleaner Co., Limited (London, November 11), it was reported that the year's profits would permit the payment of 5 per cent. dividend. Last year there was no disbursement, and the year before a dividend of 6 per cent. The company's business in the London district is reported to be increasing, and the condition of the company to be sound, but the various subsidiary companies throughout the United Kingdom have yielded smaller returns than at some times in the past.

The Eclipse Sectional Rainbow Gasket

3/8 in.
1/2 in.
5/8 in. } For Hand Holes.

3/4 in.
7/8 in.
1 in. } For Extra Large Joints.



Fac-Simile of a 6-in. Section of Eclipse Gasket Showing Name and Trade Mark Imbedded.

The Eclipse Gasket is red in color, and composed of the celebrated Rainbow Packing Compound. It will not harden under any degree of heat, or blow out under the highest pressure, and can be taken out and repeatedly replaced. Joints can be made in from three to five minutes.

The Peerless Spiral Piston and Valve Rod Packing.

It will hold 400 pounds of steam.

Once Tried Always Used.

Will run twelve months in high speed engines.

Success Semi-Metallic, Diagonal Expansion Spiral Packing, Rainbow Core.

For Steam, Low or High Pressure.

For Hot or Cold Water and Ammonia Machines.

Patented October 31, 1899.

HOSE, BELTING, PACKING, VALVES and RUBBER TILING.

Largest manufacturers in the world of fine mechanical Rubber Goods.
Send for Catalogue.

MANUFACTURED PATENTED AND COPYRIGHTED EXCLUSIVELY BY

The Peerless Rubber Manufacturing Co.

16 WARREN STREET, NEW YORK.
88 CHAMBERS STREET, NEW YORK.

LIST OF AGENCIES' ADDRESSES OF THE PEERLESS RUBBER MANUFACTURING CO.

Detroit, Mich.—24 Woodward Ave.; Chicago, Ill.—202-210 South Water St.; Indianapolis, Ind.—18 S. Capitol Ave.; Louisville, Ky.—111-121 W. Main St.; New Orleans, La.—Cor. Common and Tchoupitoulas Sts.; Omaha, Neb.—1218 Farnam St.; Richmond, Va.—1323 E. Main St.; Philadelphia, Pa.—220 S. Fifth St.; Dallas, Texas—177 Elm street.; Memphis, Tenn.—228 Front St.; St. Louis, Mo.—1213 Locust St.; Denver, Col.—1621-1639 17th St.; San Francisco, Cal.—17-23 Beale St. and 12-24 Main St.; Seattle, Wash.—Railroad Way and Occidental Ave.; Kansas City, Mo.—1221-1223 Union Ave.; Waco, Texas—709-711 Austin Ave.; Pittsburg, Pa.—634 Smithfield St.; Atlanta, Ga.—7-9 S. Broad St.; Columbus, Ohio—Cor. Long and Third Sts.; Cleveland, Ohio—61 Frankfort St.; Buffalo, N. Y.—379-383 Washington St.; Boston, Mass.—110 Federal St.; Syracuse, N. Y.—212-214 S. Clinton St.; Rochester, N. Y.—55 E. Main St.; Houston, Texas—113 Main St.; Baltimore, Md.—37 Hopkins Place.

The Publishers' Page

The New Year.

NEVER was the field for trade journalism in general so inviting or so full of interest as now. Every generation lives in an age of progress, but in this respect the present decade by comparison makes every preceding era seem "slow." And current development means the growth of the rubber industry from every standpoint—planting, forest rubber exploiting, new manufacturing processes, and new applications of rubber. There may be talk at the moment of stagnation in industry and trade: things are only dull in comparison with the marvelously prosperous conditions everywhere in recent years. But even at the present rate the consumption of rubber is double what it was only a few years ago, and the consumption of rubber is not going to fall off except temporarily and in spots, as it were.

There is going to be more matter of interest in the rubber trade to report or to discuss than ever before, and THE INDIA RUBBER WORLD will be, as ever, solicitous to place before its readers the fullest possible summary of current development in its field. It is not always possible or expedient for a trade periodical to outline in advance its program for a year, but it may not be amiss to say that in its columns will be found even more space than in the past devoted to the new rubber factory appliances that are being perfected all the while, and new processes being developed by experts on two continents.

As usual, it will report and describe new applications of rubber, at home and abroad, and devote attention to the more important new patents relating to rubber. The news of the trade promises to be even more important than in the past, since the field is broadening all the while, embracing more concerns of importance and more news topics.

The subject of rubber planting will continue to receive special attention. For several years past THE INDIA RUBBER WORLD has been a continuous record of planting, the results of which had to be left to the future. But plantation rubber has now "arrived"—over 1,000 tons last year from Ceylon and the Straits alone—and there are many questions for discussion to-day of methods of preparation of the new rubber and its handling in the factory. From this standpoint alone the present era is one of exceptional interest for the rubber man.

During 1908 THE INDIA RUBBER WORLD will complete its twentieth year. From the outset its management has worked for the future as well as the present—for permanent results—and the establishment to-day is better prepared than ever before to obtain and promptly supply its readers with the most recent and accurate information affecting their interests. The Publisher feels justified in pointing to the past of the paper as an earnest of which may be expected from it in the months and years to come. At the same time every effort will be made to deserve a continuation of that liberal appreciation in rubber circles which has so encouraged and cheered the management thus far.

The Time to Subscribe.

THE beginning of a new year is preferred by very many people as the date for beginning a subscription to a newspaper, and we are desirous of bringing our own journal to the notice of any members of the trade whose names may not be on our lists already. We should especially appreciate it if any of our subscribers should favor us with the addresses of friends of theirs who might possibly be interested in the paper, when specimen copies will be supplied.

Our Rubber Tire Book.

NOT only has Mr. Pearson's book, "Rubber Tires and About Them," received the most encouraging expressions of commendation from members of the trade and individual tire users, but the trade press in America and Europe has contained many favorable notices of it.

The *Carriage Monthly* (Philadelphia) says: "There may be those who think they know all about tires that is worth while, but they will conclude differently if they will peruse this well written volume."

The French rubber journal, *Le Caoutchouc et la Gutta-Percha,* says: "Deserves the greatest attention from the rubber trade."

The *Motor Way* says: "This work is the most thorough treatise on tire making that has come under our observation."

The book is "heartily recommended" to the trade by the German *Fahrrad und Motorfahrzeug.*

"Rubber Tires and All About Them" is published at $3 at the offices of THE INDIA RUBBER WORLD.

A Point in Corporation Law.

THE reading pages of THE INDIA RUBBER WORLD last month contains a report of an important decision, in a federal court, between two firms in the rubber footwear trade, which bears broadly upon the power of a state to restrict a corporation of another state in doing business within its limits. This is beginning to be a matter of great importance, since every American state has now legislated with a view to regulating "foreign" corporations. In the case here mentioned a company in one state sued to recover money for goods sold in another state, and was met in court by the defense that it had no standing there, because it had not complied with the state law regarding "foreign" corporations.

In the "Directory" of the rubber trade being brought out by THE INDIA RUBBER WORLD will be found a summary of the laws on "foreign" corporations in every American state.

PRIMITIVE RUBBER FOOTWEAR.—Arthur Churchill, connected with E. P. Reed & Co., of Rochester, New York, and who has had to do with the shoe trade in that city since 1852, has been recording some reminiscences in the *Shoe and Leather Reporter* (Boston), beginning with the time when the only "rubbers" in the trade came from Pará, and were composed of unvulcanized raw rubber. He says that they were "best described by their resemblance to a stocking, made of india-rubber, filled with straw; they had no lining and were so elastic they could be stretched to such varied length but few sizes were wanted to answer the requirements for a ladies' small shoe to a man's large boot. We trimmed away the stitching at the top, stretched them over a last to give them shape, and after varnishing and being allowed to stand for a few days, they were ready for use for a waterproof covering for either boot or shoe."

Small Advertisement Department.

SITUATIONS WANTED

EXECUTIVE position is desired by young man, chemist, who has had several years' experience in cost work and manufacturing general rubber goods. Also, an opportunity is desired to do experimental work in connection with the manufacture of rubber substitutes and the treatment of low-grade rubbers along new lines. Address E. A. B., care of THE INDIA RUBBER WORLD. (1003)

I DESIRE a permanent position. Have eleven years' practical experience in mechanical lines from foreman up. Have designed and erected three factories and special machinery. Acquainted with American and English methods. Highest references. Address A. R. T., care of THE INDIA RUBBER WORLD. (1002)

EXECUTIVE of practical experience in all departments of manufacturing, selling or financing in all lines of goods, wants position after January 1, to take full charge or any part. Address X. Y. Z., care of THE INDIA RUBBER WORLD. (1004)

SALES OR BRANCH MANAGER, with personal acquaintance with the large trade, desires to make new connection. Address E. M., care of THE INDIA RUBBER WORLD. (1005)

FACTORY MANAGER OR SUPERINTENDENT, of several years' practical experience, would like to secure position. An able executive and knows how to handle men and systems. Address F. G. H., care of THE INDIA RUBBER WORLD. (1006)

GERMAN, formerly employed in the rubber district of Bolivia, understands buying, etc., would like position. Address J. Z., care of THE INDIA RUBBER WORLD. (1010)

SUPERINTENDENT.—Position wanted as superintendent by a young man who thoroughly understands the compounding and manufacture of druggist and mechanical rubber goods. I have all the up-to-date formulæ and costs for these goods and can finish the goods in the best and most economical manner. Will consider any good offer in the United States, Canada, or Europe. Address R. J. C., care of THE INDIA RUBBER WORLD. (1013)

WANTED by Salesman thoroughly equipped and competent to take on selling of output of Shoe, Clothing or Mechanical rubber factory, crude or reclaimed rubber. Has personal acquaintance with trade in this country and in Europe. Best of references. Address C., care of THE INDIA RUBBER WORLD. (1017)

SITUATIONS OPEN

CHEMIST.—Wanted, a chemist experienced in making good rubber substitutes. Applicant should state where he has been employed, and send samples of the substitutes he can make. He should also state what salary he wants. Address SUB MAKER, care of THE INDIA RUBBER WORLD. (1014)

WANTED.—Experienced Draftsman, competent to take full charge of the cutting room in our Mackintosh department. APSLEY RUBBER CO., Hudson, Mass. (1018)

BUSINESS OPPORTUNITIES

A RARE OPPORTUNITY.—A well established rubber business netting the owner $500 per month clear profit will be sacrificed for quick sale. $15,000 cash and small balance on mortgage. Good-will, new plant, fixtures, etc., complete. Address BOSTON, care of THE INDIA RUBBER WORLD. (1007)

AN established rubber manufacturing company in the Middle West is desirous of increasing its capital and capacity and would entertain proposal from a first-class competent man with capital and experience to take this interest and management. Capital required $50,000 to $75,000. Address BUSINESS, care of THE INDIA RUBBER WORLD. (1008)

WANTED to form a partnership with thoroughly experienced dental rubber man. No money required. Advertiser has complete factory now. Address M. WARRICK, No. 182 Thirty-sixth Street, Milwaukee, Wis. (1112)

TO MANUFACTURERS

TO MANUFACTURERS OF BALATA BELTING.—Advertiser has a quantity of raw material to offer suitable for this at a very low price. Address JOHN LANG, 137 Fenchurch Street, London, E. C.

POSITION WANTED

AS Mechanical Rubber Goods Salesman; good line of customers in New York City and its vicinity. Address PROMPT, care of THE INDIA RUBBER WORLD.

RUBBER MACHINERY

WANTED.—A Cracker in good condition. Address A. B., care of THE INDIA RUBBER WORLD. (1001)

FOR SALE.—A rubber factory; 25,000 feet floor space; one 60 inch Combination Calender; three 16x40 inch Mills; one Washer, Churns, Spreaders, etc.; good power plant, 30 miles from Boston. Or this factory can be rented, a portion, or in full. Address RUBBER FACTORY, care of THE INDIA RUBBER WORLD. (1111)

FOR SALE.—One Drying Machine (Emil Passburg system) built by the J. P. Devine Co. of Buffalo—but little used—suitable for drying rubber and other materials. THE H. F. TAINTOR MFG. CO., No. 200 Water street, New York. (1015)

OLD, retiring Rubber Manufacturing Merchant will sell large and small calenders, mills, grinders, heaters, steam presses, heel press molds, and engine boilers, situated on Long Island near this city, or will exchange for stock in rubber company. Owner has great experience and will join a party in rubber business. Address FITZHUGH SMITH, No. 769 Greenwich street, New York. (1019)

FOR SALE OR RENT

FOR SALE OR RENT ON EASY TERMS.—A large new Rubber Mill, situated at Catasauqua, on the outskirts of Allentown, Pa. By railroad, within four hours from Pittsburg, two hours from New York City, two hours from Philadelphia, and three from Scranton, Pa. The Factory is a large brick, steel and cement building, 60' x 120'. Boiler room, 34' x 66'. Vulcanizing room, 18' x 75'. Chemical room, 16' x 16'. The Factory cost $57,000. The Machinery is *all new* and has never been used. The Machinery was made by a first-class Rubber Mill Machinery Manufacturer in the East, consisting of one 15 x 24 Dry Sand Roll Washer, both rolls cut, one 16 x 24 Chilled Cracker, one roll cut; four 16 x 40 Mills; one 18 x 42 Stock and Friction Calender, double speed drive; twenty 22 x 22 Screw Presses, 3 plateaus; two 40 x 42 Hydraulic Presses, 15" ram; one 8" x 1 3/4" x 12" Steam Pump; Two Vulcanizers 60" in diam. by 16 ft. long; one 50" Spreader with doubling arrangement that has never been taken out of the cases it was shipped in from the foundry; hydraulic pumps; two 208 horse power B. & W. Water Tube Boilers; one 20 x 40 Buckeye Engine; tanks and other apparatus; artesian well; one 16 x 12 Dean Pump; tool equipment; two smokestacks. Concrete floor all through the building. This plant is one of the most up-to-date plants in the country to-day. N. J. Central railroad siding. It comprises about three acres of land. It must be *sold* or *leased immediately*, as the party owning it is not in the manufacturing business. For *all* further information apply to PHILIP MCGROBY, Trenton, N. J.

BUYERS' DIRECTORY OF THE RUBBER TRADE.

Classified List of Manufacturers and Dealers in India-Rubber Goods and Rubber Manufacturers' Supplies.

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Gaskets.
Hose (Fire, Garden, Steam).
Mats and Matting.
Mould Work.
Packing.
Tubing.
Valves.
Washers.

Mechanical Rubber Goods—General.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Bowers Rubber Co., San Francisco, Cal.
Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
Chicago Rubber Wks., Chicago.
Cincinnati Rubber Mfg. Co., Cincinnati.
Cleveland Rubber Co., Cleveland, O.
Continental Caoutchouc & Guttapercha Co., Hanover, Germany.
Continental Rubber Works, Erie, Pa.
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B. F. Goodrich Co., Akron, O.
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The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.
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Manhattan Rubber Mfg. Co., New York.
Massachusetts Chemical Co., Walpole, Mass.
Mechanical Rubber Co., New York.
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Peerless Rubber Mfg. Co., New York.
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Air Brake Hose.

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Voorhees Rubber Mfg. Co., Jersey City.

Belting (Canvas).

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Eureka Fire Hose Co., New York.
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Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

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Boston Belting Co., Boston.
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Blankets—Printers'.

Peerless Rubber Mfg. Co., New York.
Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.

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Gutta Percha & Rubber Mfg. Co., N. Y.
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Boston Belting Co., Boston-New York.
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Carriage Mats.

Continental Rubber Works, Erie, Pa.
Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
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Home Rubber Co., Trenton, N. J.
National India Rubber Co., Bristol, R. I.

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N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston—New York.
Voorhees Rubber Mfg. Co., Jersey City.

Cord (Pure Rubber).

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Davol Rubber Co., Providence, R. I.
Dayton Rubber Mfg. Co., Dayton, O.
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Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
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Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Deckle Straps.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Mechanical Rubber Co., Chicago.
New York Belting & Packing Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Door Springs.

Hodgman Rubber Co., New York.

Dredging Sleeves.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
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N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.

Force Cups.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fruit Jar Rings.

Acme Rubber Mfg. Co., Trenton.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
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Continental Rubber Works, Erie, Pa.
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Republic Rubber Co., Youngstown, O.

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Boston Belting Co., Boston, Mass.
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Gas-Bags (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
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Peerless Rubber Mfg. Co., New York.
Tyer Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City.

Gasket Tubing.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
New Jersey Car Spring & Rubber Co.
Revere Rubber Co., Boston—New York.

Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
Dayton Rubber Mfg. Co., Dayton, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.

Hat Bags.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mattson Rubber Co.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.

Horse Shoe Pads.

Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Wire Wound.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.
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B. F. Goodrich Co., Akron, O.
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Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Core.

Alderfer Crate Co., Sharon Center, O.

Hose Pipes, Nozzles, Couplings and Fittings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Eureka Fire Hose Co., New York.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Hose Linings.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
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Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston—New York.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
New York Belting & Packing Co., N. Y.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

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Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Gutta Percha & Rubber Mfg. Co., N. Y.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Fabric Fire Hose Co., New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha & Rubber Mfg. Co. of Toronto.
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Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Continental Rubber Works, Erie, Pa.
Electric Hose & Rubber Co., Wilmington, Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
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Manhattan Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
A. Schrader's Son, Inc., New York.

Hose Bands, Straps & Menders.

Boston Woven Hose & Rubber Co.
William Yerdon, Fort Plain, N. Y.

Lawn-Hose Supporters.

C. J. Bailey & Co., Boston.

Lawn Sprinklers.

W. D. Allen Mfg. Co., Chicago.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

Mould Work.

(See Mechanical Rubber Goods.)

H. O. Canfield Co., Bridgeport, Ct.
Continental Rubber Works, Erie, Pa.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Dayton Rubber Mfg. Co., Dayton, O.
Faultless Rubber Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
Massachusetts Chemical Co., Walpole, Mass.
Mattson Rubber Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Stowe & Woodward Co., Campello, Mass.
Tyer Rubber Co., Andover, Mass.
Western Rubber Works, Goshen, Ind.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Continental Rubber Works, Erie, Pa.
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Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

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(See Mechanical Rubber Goods.)

Dayton Rubber Mfg. Co., Dayton, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
New Jersey Car Spring & Rubber Co.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

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Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Western Rubber Works, Goshen, Ind.

Pump Valves.

(See Mechanical Rubber Goods.)

Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
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Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Revere Rubber Co., Boston—New York.
Western Rubber Works, Goshen, Ind.

Rolls—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Empire Rubber Mfg. Co., Trenton, N. J.
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Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.
Stowe & Woodward Co., Campello, Mass.

Sewing Machine Rubbers.

Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
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Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Acme Rubber Mfg. Co., Trenton.
Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co., of Montreal.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.

RUBBER BUYERS' DIRECTORY—Continued.

Stair Treads—Continued.

Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I
Revere Rubber Co., Boston—New York.

Tiling.

Canadian Rubber Co., of Montreal, Ltd.
Continental Rubber Works, Erie, Pa.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring and Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

(See Mechanical Rubber Goods.)
American Hard Rubber Co., New York.
Continental Rubber Works, Erie, Pa.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Dayton Rubber Mfg. Co., Dayton, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
New Jersey Car Spring & Rubber Co.
New York Belting & Packing Co., N. Y.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston—New York.

Valve Discs.

American Hard Rubber Co., New York.
Boston Belting Co., Boston-New York.
Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Western Rubber Works, Goshen, Ind.

Valves.

(See Mechanical Rubber Goods.)
Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York-Chicago.
New Jersey Car Spring & Rubber Co.
New York Belting & Packing Co., N. Y.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic, N. J.
New York Belting & Packing Co., Ltd., New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Continental Rubber Works, Erie, Pa.
Dayton Rubber Mfg. Co., Dayton, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES.

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Canton Rubber Co., Canton, O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Imperial Rubber Mfg. Co., Beach City, O.
L. & M. Rubber Works, Canton, Ohio.
Luzerne Rubber Co., Trenton, N. J.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York.

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.

Finger Cots.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Imperial Rubber Mfg. Co., Beach City, O.
The Rubber Products Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Imperial Rubber Mfg. Co., Beach City, O.
National India Rubber Co., Bristol, R. I.
Rubber Products Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
H. O. Canfield Co., Bridgeport, Ct.
Davol Rubber Co., Providence, R. I.
Household Rubber Co., Youngstown, O.
Luzerne Rubber Co., Trenton, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Imperial Rubber Mfg. Co., Beach City, O.
National India Rubber Co., Bristol, R. I.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Imperial Rubber Mfg. Co., Beach City, O.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Geo. Borgfeldt & Co., New York.
Faultless Rubber Co., Ashland, O.
N. Tire Rubber Sponge Co., Chicago.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
A. Schrader's Sons, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich, Akron, O.
National India Rubber Co., Bristol, R. I.
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
The Rubber Products Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND SURFACE GOODS.

Air Cushions.

Metropolitan Air Goods Co., Reading, Mass.

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Metropolitan Air Goods Co., Reading, Mass.
New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Metropolitan Air Goods Co., Reading, Mass.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.

Calendering.

Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Gutta Percha & Rubber Mfg. Co., Toronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.
Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

(See Clothing.)

Proofing.

Canadian Rubber Co. of Montreal.
Plymouth Rubber Co., Stoughton, Mass.
Stowe and Woodward, Campello, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR.

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal.
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Lycoming Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co., Hanover.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass.
Springfield Tire & Rubber Co., Springfield, Ohio.
Western Rubber Works, Goshen, Ind.

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Providence.
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND STAMP RUBBER.

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL.

Electrical Supplies.

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

RUBBER BUYERS' DIRECTORY—Continued.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Luserne Rubber Co., Trenton, N. J.
Joseph Stokes Rubber Co., Trenton, N. J.

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.
National India Rubber Co., Providence.

Splicing Compounds.

Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Walpole, Mass.

SPORTING GOODS.

Foot Balls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Rubber Products Co., Barberton, O.

Submarine Outfits.

Hodgman Rubber Co., New York.
A. Schrader's Sons, Inc., New York.

MISCELLANEOUS.

Boxes (Wood).

Henry H. Sheip & Co., Philadelphia.

Brass Fittings.

A. Schrader's Son, Inc., New York.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical and Mechanical Engineer.

Charles E. Farrington, Boston.

Chemists.

Stephen P. Sharples, Boston, Mass.

Consulting Engineers.

Akron Rubber Engineering Co., Akron, O.
M. P. Fillingham, New York.

Rubber Journals.

Gummi-Zeitung, Dresden, Germany.
L'Agriculture des Pays Chauds, France.

Rubber Tree Seeds.

J. P. William & Bros., Heneratgoda, Ceylon.
Paul Krumbhols, Momotombo, Nicaragua.

Scrap Metals.

Robert L. Crooke, New York.

Stair Nosings.

The Painesville Metallic Binding Co., Painesville, Ohio.

Tapping Tools.

G. Van den Kerckhove, Brussels, Belgium.

Valves for Air Goods.

A. Schrader's Son, Inc., New York.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY.

Acid Tanks.

Birmingham Iron Foundry, Derby, Conn.

Band Cutting Machines.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.

Belt Folding Machines.

Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Belt Slitters.

Cloth Dryers.

Gearing.

Shafting.

Wrapping Machines.

Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Belt Stretchers.

Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.

William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.

New England Butt Co., Providence, R. I.

Calenders.

Birmingham Iron Foundry, Derby, Conn.
David Bridge & Co., Castleton, Manchester, Eng.
Farrel Foundry & Mach. Co., Ansonia, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Castings.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Chucks (Lathe).

Hoggson & Pettis Mfg. Co., New Haven.

Churns.

American Tool & Machine Co., Boston.

Clutches.

Farrel Foundry & Mach. Co., Ansonia, Conn.

Crackers.

Birmingham Iron Foundry, Derby, Conn.

Devulcanizers.

Biggs Boiler Works Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Edred W. Clark, Hartford, Conn.
William R. Thropp, Trenton, N. J.

Dies.

John J. Adams, Worcester, Mass.
Boston Die Co., Boston.
Hoggson & Pettis Mfg. Co., New Haven.

Doubling Machines.

American Tool & Machine Co., Boston.

Drying Apparatus.

American Process Co., New York.

Drying Machines.

David Bridge & Co., Castleton, Manchester, Eng.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Conn.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.

Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.

William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Engraving Rolls.

Hoggson & Pettis Mfg. Co., New Haven.

Grinders and Mixers.

Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
William R. Thropp, Trenton, N. J.

Hangers.

Farrel Foundry & Mach. Co., Ansonia, Conn.

Hose Machines.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.

Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Insulating Machinery.

John Royle & Sons, Paterson, N. J.

Lasts (Rubber Shoe).

Middlesex Last Co., Boston.

Lathes—Hard Rubber.

A. Adamson, Akron, O.

Lathes—Jar Ring.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
William R. Thropp, Trenton, N. J.

Machinists' Tools.

Hoggson & Pettis Mfg. Co., New Haven.

Moulds.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Hoggson & Pettis Mfg. Co., New Haven.
Williams Foundry & Machine Co., Akron, Ohio.

Pillow Blocks.

Farrel Foundry & Mach. Co., Ansonia, Conn.

Porcelain Forms for Dipped Goods.

Colonial Sign and Insulator Co., South Akron, Ohio.

Presses (for Rubber Work).

A. Adamson, Akron, O.
Bay State Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Boomer & Boschert Press Co., Syracuse, N. Y.
Edred W. Clark, Hartford, Conn.
Farrel Foundry & Mach. Co., Ansonia, Conn.
William R. Perrin & Co., Chicago Ill.
William R. Thropp, Trenton, N. J.
Williams Foundry & Machine Co., Akron, Ohio.

Pumps.

Birmingham Iron Foundry, Derby, Conn.
Boomer & Boschert Press Co., Syracuse.
Farrel Foundry & Mach. Co., Ansonia, Conn.

Racks for Boot and Shoe Cars.

Hoggson & Pettis Mfg. Co., New Haven.

Reducing Valves.

Mason Regulator Co., Boston.

Rollers (Hand).

Hoggson & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.

New England Butt Co., Providence, R. I.

Separators.

Turner, Vaughan & Taylor Co., Cuyahoga Falls, O.

Separators for Reclaimed Rubber.

American Process Co., New York.

Special Rubber Machinery.

Wellman Co., Medford, Mass.

Spreaders.

American Tool & Machine Co., Boston.
Birmingham Iron Foundry, Derby, Conn.
New England Butt Co., Providence, R. I.

Steam Traps and Specialties.

Jenkins Bros., New York.
Mason Regulator Co., Boston.
Osgood Sayen, Philadelphia, Pa.

Steel Stamps.

Hoggson & Pettis Mfg. Co., New Haven.

Stitchers (Hand).

Hoggson & Pettis Mfg. Co., New Haven

Strip Covering Machines.

Strip Cutters.

New England Butt Co., Providence, R. I.

Tire Molds.

Bay State Machine Co., Erie, Pa.
Williams Foundry & Machine Co., Akron, O.

Tubing Machines.

A. Adamson, Akron, O.
Bay State Machine Co., Erie, Pa.
Edred W. Clark, Hartford, Conn.
John Royle & Sons, Paterson, N. J.
Williams Foundry & Machine Co., Akron, Ohio.

Vacuum Drying Chambers.

Buffalo Foundry & Machine Co., Buffalo, N. Y.
Joseph P. Devine Co., Buffalo, N. Y.
F. J. Stokes Machine Co., Philadelphia, Pa.

Varnishing Machines.

Birmingham Iron Foundry, Derby, Conn.

Vulcanizers.

Biggs Boiler Works Co., Akron, O.
Birmingham Iron Foundry, Derby, Conn.
Farrel Foundry & Mach. Co., Ansonia.
John E. Thropp's Sons Co., Trenton, N. J.
William R. Thropp, Trenton, N. J.

Washers.

Birmingham Iron Foundry, Derby, Conn.
David Bridge & Co., Castleton, Manchester, Eng.
Continental Rubber Works, Erie, Pa.
Farrel Foundry & Mach. Co., Ansonia, Conn.
William R. Thropp, Trenton, N. J.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, O.

Wire Insulating Machines.

New England Butt Co., Providence, R. I.
John Royle & Sons, Paterson, N. J.

SECOND-HAND MACHINERY.

Philip McGrory, Trenton, N. J.
M. Norton & Co., Charlestown, Mass.

FACTORY SUPPLIES.

Aluminum Flake.

Aluminum Flake Co., Akron, O.

Antimony, Sulphurets of.

Golden.

Actien-Ges. Georg Egestorff's Salzwerke Linden, Germany.
Atlas Chemical Co., Newtonville, Mass.

Golden and Crimson.

Joseph Cantor, New York.

MACHINERY AND SUPPLIES FOR RUBBER MILLS—Continued.

Antimony, Sulphurets of.—Continued.

Golden and Crimson.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Balata.

George A. Alden & Co., Boston.
Raw Products Co., New York.

Benzol.

Samuel Cabot, Boston.

Black Hypo.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.

Carbon Bisulphide.

George W. Speaight, New York.

Chemicals.

Massachusetts Talc Co., Boston.
Oxford Tripoli Co., New York.
George W. Speaight, New York.
S. P. Wetherill Co., Philadelphia, Pa.

Colors.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.
S. P. Wetherill Co., Philadelphia, Pa.

Crude Rubber.

George A. Alden & Co., Boston.
Walter L. Gough Co., New York.
Hagermeyer & Brunn, New York.
Adolph Hirsch & Co., New York.
Livesey & Co., Ltd., New York.
Raw Products Co., New York.
Rubber Trading Co., New York-Boston.

Dermatine.

The Dermatine Co., London.

Ducks and Drills (Cotton).

J. H. Lane & Co., New York.

Gilsonite.

William H. Scheel, New York.

Graphite Grease.

Jos. Dixon Crucible Co., Jersey City.

Guayule Rubber.

Continental Rubber Co.
Ed. Maurer, New York.

Gutta-Percha.

George A. Alden & Co., Boston.
Raw Products Co., New York.
Rubber Trading Co., New York-Boston.

Hydro-Carbon Products.

Geo. A. Alden & Co., Boston.
William H. Scheel, New York.
Raven Mining Co., Chicago.

Infusorial Earth.

Stamford (Conn.) Rubber Supply Co.

Kapak.

Raven Mining Co., Chicago.

Lampblack.

Samuel Cabot, Boston.

Lead—Blue.
Lead—Sublimed White.

Picher Lead Co., Chicago, Ill.

Lithopone.

Gabriel & Schall, New York.

Mineral Rubber.

Geo. A. Alden & Co., Boston.

Paris White and Whiting.

H. P. Taintor Mfg. Co., New York.

Reclaimed Rubber.

Aladdin Rubber Co., Akron, O.
Alkali Rubber Co., Akron, O.
F. H. Appleton & Son, Boston.
Bloomingdale (N. J.) Soft Rubber Co.
E. H. Clapp Rubber Co., Boston, Mass.
Danversport Rubber Co., Boston.
Derby Rubber Co., Derby, Conn.
Eastern Rubber Co., New York.
John Lang, London.
Manufactured Rubber Co.
New Jersey Rubber Co., Lambertville, N. J.
Pequanoc Rubber Co., Butler, N. J.
Philadelphia Rubber Works, Philadelphia.
Rickaby Rubber Mfg. Co., South Framingham, Mass.
Robinson & Stiles, New York.
Stockton Rubber Co., Stockton, N. J.
Jos. Stokes Rubber Co., Trenton, N. J.
S. & L. Rubber Co., Chester, Pa.
Trenton (N. J.) Rubber Reclaiming Works.
U. S. Rubber Reclaiming Works, N. Y.
Westmoreland Rubber Mfg. Co., Grapeville, Pa.

Agents and Dealers.

Philip McGrory, Trenton, N. J.
H. P. Moorhouse, Paris, France.
Rubber Trading Co., New York-Boston.
Wm. Somerville's Sons, Liverpool.

Scrap Rubber.

L. Albert & Son, Trenton, N. J.
Bers & Co., Philadelphia.
M. Berzen & Co., New York.
Wm. H. Cummings & Sons, New York.
Gordon & Rosenthal, Trenton, N. J.
Green, Hans L., & Co., New York.
Theodore Hofeller & Co., Buffalo, N. Y.
M. Kaufman, Chicago.
A. W. Leslie & Co., Ltd., London, Eng.
B. Loewenthal & Co., New York and Chicago.
J. Loewenthal & Sons, Chicago.
Philip McGrory, Trenton, N. J.
Meyer Bros., Philadelphia, Pa.
Albert A. Moers, New York.
M. Norton & Co., Charlestown, Mass.
E. Parser & Brodsky, Antwerp.
J. Schnurmann, London.
Schwab & Co., Philadelphia.
Trenton Scrap Rubber Supply Co., Trenton, N. J.
United States Waste Rubber Co., Brockton, Mass.
M. J. Wolpert, Odessa, Russia.

Substitute.

T. C. Ashley, Boston.
Joseph Cantor, New York.
Carter, Bell Mfg. Co., New York.
Corn Products Refining Co., New York.
C. P. Dos Santos, New York.
Massachusetts Chemical Co., Boston.
The Rubber Chemical Co., Birmingham, England.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.
Robert E. Tyson, Fairfield, Conn.

Sulphur.

Battelle & Renwick, New York.
T. & S. C. White Co., New York.

Sulphur Chloride.

William H. Scheel, New York.
George W. Speaight, New York.
Stamford (Conn.) Rubber Supply Co.

Whiting.

H. P. Taintor Mfg. Co., New York.

Zinc, Oxide of.

New Jersey Zinc Co., New York.

Zinc Substitute.

Aluminum Flake Co., Akron, O.

Zinc Sulphide.

Joseph Canter, New York.
Typke & King, London, England.

BUYERS' DIRECTORY FOR RUBBER TIRES AND ACCESSORIES.

Auto Top Fabrics.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fabrics.

Lane & Co., J. H., New York.
National India Rubber Co., Bristol, R. I.

Insulated Wires.

The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.
National India Rubber Co., Bristol, R. I.

Mats, Automobile.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston, Mass.

Repair Stock.

Trenton Rubber Mfg. Co., Trenton, N. J.

Rims, Wheel.

Goodrich Co., B. F., Akron, Ohio.

Tires.

Bailey & Co., C. J., Boston, Mass.
Canadian Rubber Co., of Montreal, Ltd.
Continental Caoutchouc Co., New York.
Continental Rubber Works, Erie, Pa.
Dunlop Tire & Rubber Goods Co., Toronto.
Empire Rubber Mfg. Co., Trenton, N. J.
Goodrich Co., B. F., Akron, Ohio.
Gutta Percha & Rubber Mfg. Co., Toronto.
The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana.
Kokomo Rubber Co., Kokomo, Ind.
Lake Shore Rubber Co., Erie, Pa.
North British Rubber Co., Ltd., Edinburgh, Scotland.
Pirelli & Co., Milan, Italy.
Springfield Tire & Rubber Co., Springfield, O.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Trenton Rubber Mfg. Co., Trenton, N. J.

Automobile and Carriage.

Acme Rubber Mfg. Co., Trenton, N. J.
Boston Belting Co., Boston-New York.
Revere Rubber Co., Boston-New York.

Tire Fabrics.

Lane & Co., J. H., New York.

Tire Repairing.

Voorhees Rubber Mfg. Co., Jersey City, N. J.

Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
Manhattan Rubber Mfg. Co., New York.
Revere Rubber Co., Boston, Mass.

Valves, Tire.

Dubied & Co., Ed., 43-45 West 34th St., New York.
Schrader's Sons, Inc., A., New York.